Montgomery County, Maryland

DIVISION OF SOLID WASTE SERVICES

Comprehensive Solid Waste Management 10 Year Plan

2007-2016

(Proposed) 1/05/09

Department of Environmental Protection
Division of Solid Waste Services
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Rockville, Maryland 20850
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MONTGOMERY COUNTY, MARYLAND

COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN

for the Years 2007 through 2016

Prepared in accordance with Title 9, Subtitle 5 of the Environment Article of the Annotated Code of Maryland

Adopted by the County Council of Montgomery County, Maryland by Resolution Number [__-____] dated [_____], 2008 following a public hearing which was held on October [__], 2008.

Department of Environmental Protection
Division of Solid Waste Services

Rockville, Maryland

Executive Summary

The Montgomery County, Maryland, Comprehensive Solid Waste Management Plan for the Years 2007 - 2016 has been prepared in accordance with Subtitle 5, Title 9 of the Environment Article, Annotated Code of Maryland. The Plan has been adopted by the Montgomery County Council Resolution [-] (see page [ ]), and approved by the Maryland Department of the Environment (see page [ ]).

This Ten-year Plan is updated every three years, as required by Maryland law to reflect amendments by the County Council and the continuing changes that are occurring in the County related to solid waste management. The following amendments, changes, additional appendices and other pertinent documents are included in this Plan:

Chapter 1 provides an overview of the laws, regulations, and government agencies that are a part of this Comprehensive Solid Waste Plan. Changes to this chapter include:

- Dates are updated throughout.
- Tables of applicable laws and regulations are updated. No significant changes have occurred since the last Plan update.
- Enabling laws and regulations are updated and clarified.

Chapter 2 provides an overview of population and employment trends and land use considerations that impact present and future solid waste management considerations. Changes to this chapter include:

- Dates and population/employment numbers are updated throughout.

Chapter 3 provides detailed data on waste generation and descriptions of waste collection and acceptance facilities. Changes to this chapter include:

- Dates and waste generation tonnages are updated throughout.

- Tables are repositioned to follow text references.
- The County recycling rate calculation method is clarified.
- Waste collection district and sub-district descriptions and the sub-district transfer process are conformed to recently passed Council Resolution, allowing adjustments to take place by means of Executive Regulation.
- Recycling descriptions are updated for Office Paper Systems (OPS) mixed paper operation.

Chapter 4 assesses solid waste management needs to address waste generation issues and acceptance facility constraints. Changes to this chapter include:

- Dates and generation percentages are updated throughout.
- A table, with accompanying text, is added enabling analysis, by sector, of the extent to which individual types of recyclable materials are being recycled and disposed.
- The recycling goal of 50 percent by 2010 is confirmed.
- Text is added clarifying the relationship between the recycling goal and tonnage projections under the County's solid waste management system. .
- Text describing the County's electronics recycling program is added.
- Documentation concerning the options and currently known disposal of MSW and C&D at facilities other than the County Transfer Station is substantially expanded.
- A new planning direction towards exploring food waste composting is indicated.
- Text is added on the management of compact fluorescent lamps.
- A new section on green house gasses (GHG) and ozone related emissions is added.

Chapter 5 provides a Plan of Action to address solid waste generation issues and acceptance facility needs. Changes to this chapter include:

- Dates and generation data are updated throughout.
- Discussion of Transfer Station modifications to address peak flows under a current CIP project and relocate yard waste operations to the Gude landfill site is updated.

- The County's ban on disposal of recyclables is described with respect to Executive Regulations 14-04AM and 18-04, and enforcement of those regulations is discussed.
- Contingency plans for yard waste management, to avoid exceeding the agreed limitation on annual tonnage received at the Dickerson Composting Facility, are expanded.
- Discussion of bypass in the context of facility capacity is expanded.
- The tipping fee policy is expanded and clarified.
- The summary Plan of Action table is updated and expanded.

Appendix A provides a list of term definitions. Changes to this appendix include:

- A definition for Land Clearing Debris is added.

Appendix B is updated to provide a material flow diagram and recycling calculations for a new Base Year.

Appendix C provides a copy of the County landfill site selection criteria.

Appendix D provides copies of community agreements related to solid waste facilities.

Appendix E provides a copy of Council Resolution 13-1498 "Creation of Dickerson Area Facilities Implementation Group (DAFIG)".

Appendix F provides a copy of Montgomery County Executive Regulation 6-99AM Expansion of Leaf Vacuuming Collection District.

Montgomery County Council Resolution

NOTE: Intentionally left blank. Replace with approved Montgomery County Council Resolution when adopted.

Montgomery County Council Resolution (cont.)

Montgomery County Council Resolution (cont.)

Approval Letter
Maryland Department of the Environment

NOTE: Intentionally left blank. Replace with approval letter from MDE.

MDE Approval Letter (cont.)

Chapter 1: Rules Governing Solid Waste Management

Montgomery County, Maryland (the “County”), is a body politic and corporate and a political subdivision of the State of Maryland. The Montgomery County Comprehensive Solid Waste Management Plan for the Years 2007 – 2016 (the "Plan"), sets forth the policies, goals, and plans for the comprehensive management of solid waste in the County. The Plan was prepared by the Division of Solid Waste Services (DSWS) of the County Department of Environmental Protection (DEP) in accordance with Title 9, Subtitle 5 of the Environment Article, Annotated Code of Maryland. State law requires that the Plan must be adopted by the Montgomery County Council and submitted to the Maryland Department of the Environment (MDE) for approval. This chapter is organized as follows:

Acronyms and solid waste terms used in this chapter and throughout this document are defined in Appendix A.

1.1 AUTHORITY AND PURPOSE

1.1.1 Authority

Maryland State law authorizes the Montgomery County Council to regulate and control the management of solid waste in the County, pursuant to Sections 9-501 through 9-521 of the Environment Article, Annotated Code of Maryland. State law requires the County to develop a “Solid Waste Management Plan" for the entire County, including all towns, municipal corporations and sanitary districts. The Plan must cover a ten-year planning period and describe the solid waste disposal systems, solid waste acceptance

facilities and the systematic collection and disposal of solid waste by public or private entities. The Plan must be reviewed and updated as necessary at least once every three years. When deemed necessary by either the County Executive or the County Council, the County Executive must prepare an amendment to the Plan. The County must conduct a public hearing prior to adopting, amending or revising the Plan. The Plan must contain the information specified in COMAR 26.03.03, "Development of County Solid Waste Management Plans," as amended.

1.1.2 Purpose of Plan

The purpose of this Plan is to describe the County's programs for providing comprehensive management of solid waste generated by the County's residential, commercial, institutional, industrial, and agricultural sectors during the ten-year period from 2007 through 2016. The Plan establishes the framework on which current solid waste management activities are conducted and future programs are implemented. This Plan reflects the established integrated solid waste management system adopted by the County Council and implemented by the County Executive. The Plan sets out the manner in which solid waste generated throughout the County will be managed for the next ten years.

A number of technical terms have been developed in connection with the County's solid waste management system. The definitions of these terms as used in this Plan are included in Appendix A.

1.2 GOALS, OBJECTIVES AND POLICIES FOR SOLID WASTE MANAGEMENT

1.2.1 General Goals, Objectives and Policies

As related in Chapter 5 of this Plan, Montgomery County has adopted a general goal of solid waste management that establishes waste reduction as the most preferred management technique, followed by reuse and recycling, then incineration with energy

recovery, and, least preferred, landfilling. The general solid waste goals of this Plan include the following specific elements:

- The County must undertake all waste reduction measures to the extent practical and feasible.

- All waste recycling measures should be implemented that are practical with available technologies and markets and which are not significantly more expensive than the waste disposal measures that would otherwise be needed. Technology, markets, and cost effectiveness should be reviewed regularly so that recycling may be expanded as new opportunities arise or, conceivably, contracted if markets for particular materials disappear for a long time.

- The County will operate, or cause to be operated, a waste-to-energy Resource Recovery Facility (RRF) to burn the combustible solid waste remaining after reduction and recycling.

- Out-of-County landfilling is the preferred disposal method for RRF ash, bypass waste, and non-processible waste that cannot be recycled or reused. "Bypass" means waste received by the County which is processible at the RRF, but is not processed at the RRF and is instead sent by the County to its out-of-County landfill. In-County landfilling should occur only if cost effective out-of-County landfilling options become unavailable or legislatively prohibited.

- The County solid waste acceptance, drop-off, recycling and disposal facilities are designed based upon projections of solid waste generated in the County. To conserve capacity at the RRF and at other solid waste and disposal facilities for the residents and businesses of the County, the use of these facilities is restricted to solid waste generated in the County. This restriction does not apply to the Materials Recovery Facility (MRF), where under the terms of a contract with Office Paper Systems (OPS), the County may

allow other jurisdictions to use any excess capacity at the OPS facility (see Section 5.1.2.1 of this Plan).

- The County builds and maintains solid waste acceptance and disposal facilities primarily to accommodate municipal solid waste generated in the County. The County facilities may not necessarily accommodate other types of waste.

1.2.2 Integrated Solid Waste Management System

The County has adopted an integrated solid waste management system to achieve its goal of reducing and recycling solid waste to the maximum feasible extent. To achieve this goal, the County has adopted a policy that establishes a hierarchy of solid waste management options. The most preferred management option is the reduction of solid waste at its source. The second most preferred solid waste management technique is recycling and reuse of solid waste. The County's goal is to achieve, maintain or exceed 50 percent recycling of municipal solid waste by the end of Calendar Year 2010. The third tier option is combustion of solid waste remaining after reduction and recycling that for the recovery of electrical energy. The least preferred method of managing solid waste is landfilling. Solid waste remaining after reduction, recycling and combustion is landfilled. This hierarchy recognizes the interdependence of all elements of an integrated solid waste management system.

To realize its recycling goals, the County has implemented a policy of County-wide (non-municipal) curbside collection of recyclable materials and established a policy favoring purchase of recycled materials[1]. The County has adopted regulations requiring recycling at non-municipal multi-family residential (apartment) and commercial properties[2,3] and has numerous programs to promote and further achieve its recycling goals, as detailed in

1 Chapters 48 and 11B-56 in Montgomery County Code.

2 The City of Gaithersburg adopted the County's regulations for multi-family and commercial recycling in 2005.

3 In September 2008, the City of Rockville adopted the same regulations.

Chapter 5. The County has also adopted a ban on all recyclables at any County's solid waste disposal facilities.

The MRA of 1988 sets a recycling goal of 20 percent for counties with populations over 150,000 residents. The County's solid waste management programs and policies have created a system that exceeds the State's established recycling goals (see Section 3.1.10). The County's solid waste management hierarchy is fully consistent with the State's solid waste management hierarchy. By shifting the focus of solid waste management to reduction and recycling, the County strives to reduce the solid waste remaining for disposal. This helps the County reduce its reliance upon land within the County for landfilling. Further, by combusting solid waste, the volume of material required to be landfilled is reduced 70 % by weight and 90 % by volume. This is consistent with the County's comprehensive land use plan. The County's General Plan, known as *" A General Plan for the Maryland-Washington Regional District in Montgomery and Prince George's Counties,"* provides the comprehensive planning and policy framework for land use, growth management, and resource management in Montgomery County.[4] This Plan acknowledges the existence of certain solid waste facilities and advises that the County "provide an adequate, self-sufficient, well-monitored, and ecologically sound system for the management of Montgomery County's solid wastes".[5]

1.3 GOVERNMENT STRUCTURE FOR SOLID WASTE MANAGEMENT

The County is a charter county of Maryland with a nine-member county council and a county executive. The County Executive drafts the Plan, its amendments and revisions, and recommends solid waste legislation. The County Executive also administers the County solid waste laws in Chapter 48 of the Montgomery County Code. The County Council, after providing notice and conducting public hearings, adopts the Plan, its amendments and

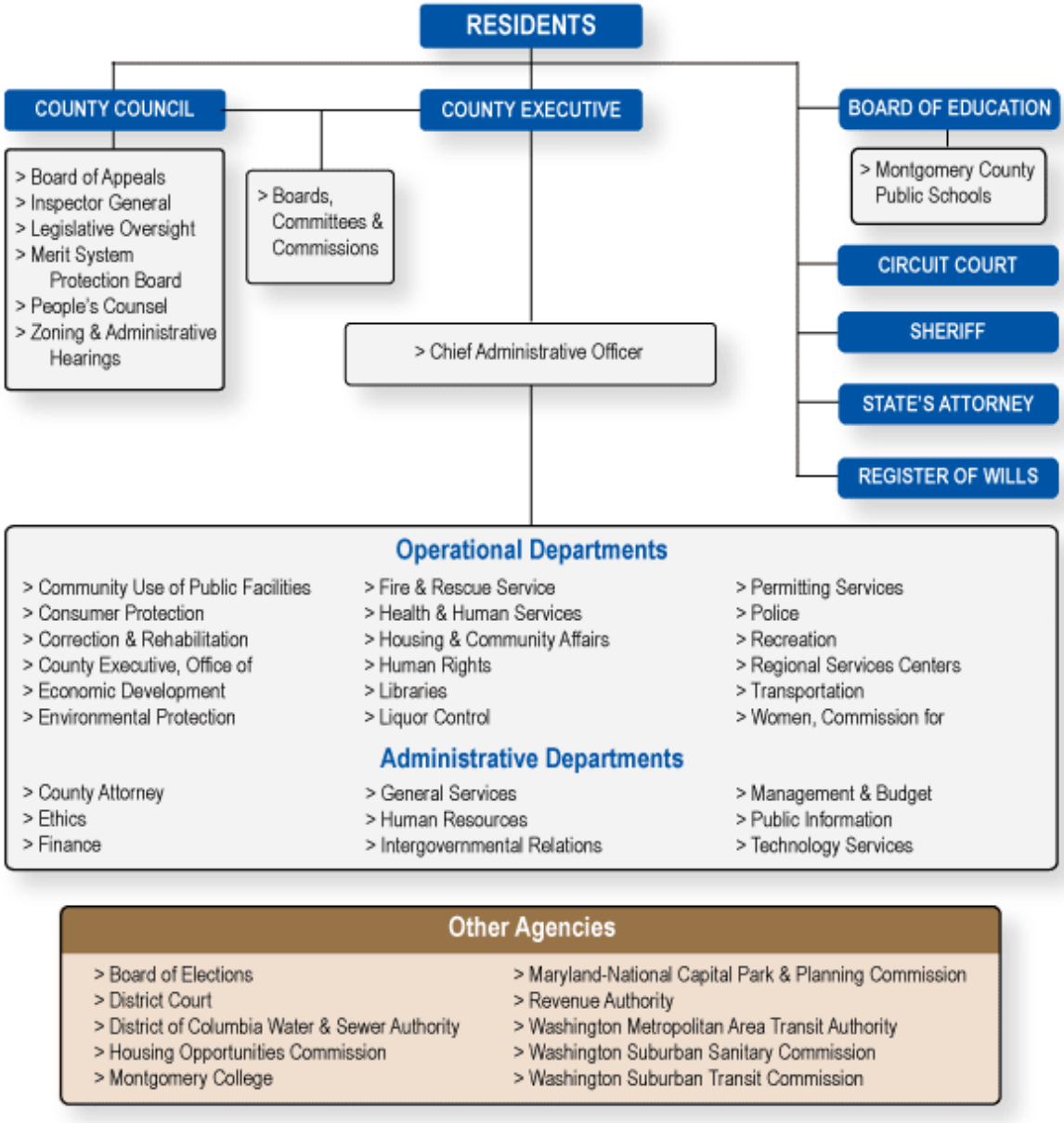
4 See Section 2.3 of this Plan for a fuller discussion of the County's General Plan.

5 Source: "A General Plan Refinement of the Goals and Objectives of Montgomery County," Maryland National Capital Park And Planning Commission, December 1993.

revisions and approves other solid waste legislation. An organizational chart of the County government is provided in Figure 1.1.

Figure 1.1

Montgomery County, Maryland Functional Organization Chart



1.3.1 Primary Solid Waste Management Responsibility

The day-to-day management of the County's integrated solid waste management system and planning for solid waste management is the responsibility of the County's DEP. DEP is under the general supervision of a Director, who is appointed by the County Executive and confirmed by the County Council. The Department of Environmental Protection (DEP) monitors air, water, and other environmental quality concerns related to solid waste management activities. In addition, DEP ensures that hazardous and special medical wastes are properly handled through the enforcement of State regulations and Chapter 48 of the County Code governing the handling and disposal of such material.

Within DEP, DSWS, which is headed by a merit employee division chief, is responsible for:

- Overseeing the collection of solid waste, responding to inquiries and complaints related to collection services and other County solid waste program activities, and enforcing solid waste laws and regulations;

- Managing solid waste reduction, recycling, composting, resource recovery and disposal facilities and programs to implement the County's integrated solid waste management system as detailed in Chapter 5 of this Plan;

- Disseminating information providing education, training and technical assistance to the public about various components of the County's integrated solid waste management system;

- Administer recycling regulations, including providing technical assistance and support, as well as enforcement;

- Assisting and supporting the legislatively created citizen advisory committees including: the SWAC, DAFIG and other ad-hoc advisory groups;

- Planning for facilities and programs with advice from SWAC and DAFIG to implement the County's integrated solid waste management system;

- Drafting the Plan and its amendments and revisions, proposed legislation and regulations, with review comments from the Office of the County Attorney (OCA), SWAC, DAFIG and the Maryland-National Capital Park and Planning Commission (M-NCPPC); and

- Providing for the periodic review and update, if necessary, of the Plan on a three-year basis.

1.3.2 Other Executive Branch Departments that Manage Solid Waste

The Department of Housing and Community Affairs (DHCA) enforces portions of Chapter 48 by ensuring removal of abandoned vehicles and solid waste from residential areas.

The MCDOT Division of Highway Services vacuums leaves in a portion of the County, collects roadside litter, and conducts clean-up operations following significant storm events.

The Police Department receives and disposes of abandoned vehicles.

The Division of Animal Services within the Police Department contracts for the collection and disposal of dead animals.

The Department of Fire and Rescue Services (DFRS) reviews solid waste acceptance facilities with respect to the potential for fire and other hazards. DFRS also supports DEP in controlled hazardous substances (CHS) spill emergencies.

1.3.3 Other Agencies that Manage Solid Waste

Other agencies have the following roles in the management of solid waste in the County and in the development of the Plan.

1.3.3.1 Maryland-National Capital Park and Planning Commission

The M-NCPPC is a bi-County agency created by the General Assembly of Maryland to prepare, adopt, and amend land use plans for the physical development of the Maryland-Washington Regional District that includes most of Montgomery and Prince George's Counties. M-NCPPC provides DEP with information and assistance as necessary during the preparation of the Plan. Pursuant to Section 9-515(e) of the Environment Article, Annotated Code of Maryland, the County Council must submit the final draft of any revision or amendment of the Plan to M-NCPPC for their recommendations at least 30 days before the date set for the public hearing on the Plan. The County Council requested M-NCPPC comments on [_____], 2009. M-NCPPC's recommendations are listed in Appendix [__].

1.3.3.2 Washington Suburban Sanitary Commission

The Washington Suburban Sanitary Commission (WSSC) is a bi-County agency created by the General Assembly of Maryland. WSSC is responsible for planning, designing, constructing, operating and maintaining waste and sewerage systems, and acquiring facility sites and rights-of-way to provide potable water and sanitary sewer services within the Washington Suburban Sanitary District that includes most of Montgomery and Prince George's Counties. WSSC provides the executive branch with information and assistance as necessary during the preparation of the Plan. Pursuant to Section 9-515(e) of the Environment Article, Annotated Code of Maryland, the County Council must submit the final draft of any revision or amendment of the Plan for recommendation to WSSC at least 30 days before the date set for the public hearing on the Plan. The County Council requested WSSC comments on [_____], 2009. WSSC recommendations are listed in Appendix [__]. In addition, WSSC is responsible for the management of biosolids from wastewater

treatment plants in Montgomery County and from the Blue Plains Wastewater Treatment Facility in the District of Columbia.

1.3.3.3 Maryland Environmental Service

The Maryland Environmental Service (MES) is an agency of the State of Maryland and a public corporation that provides environmental management services to public and private entities. MES receives no direct State appropriation and is required to provide its services on a fee-for-service basis. MES assists the County in the operation of several elements of the County's solid waste management system, including operation of the MRF, the Yard Trim Composting Facility, and recycling activities taking place at the County Transfer Station.

1.3.3.4 Northeast Maryland Waste Disposal Authority

The Northeast Maryland Waste Disposal Authority (NMWDA) is a body politic and corporate and a public instrumentality of the State of Maryland. NMWDA was created by the General Assembly of Maryland to assist political subdivisions, public entities and the private sector in waste management and the development of adequate waste disposal facilities to accommodate regional requirements for disposal of solid waste. NMWDA financed the cost of designing and constructing the RRF and related transportation improvements necessary for the project. The County has a Waste Disposal Agreement with NMWDA for the disposal of non-recycled waste.

1.3.3.5 Waste Reduction and Recycling by Government Agencies

Each County agency must comply with all waste reduction and recycling requirements imposed on County businesses. Each agency should track its annual waste generation and recycling rates and should be prepared to report to the Council as requested on measures undertaken to reduce the amount of trash produced.

In accordance with Resolution 15-313, regarding environmental policy, each County agency or department must appoint Environmental Policy Coordinators, submit environmental action plans outlining their goals, including annual reports on their accomplishments, and, promote environmentally responsible business practices. The County expects all federal and state agencies located in the County to abide by County waste reduction and recycling regulations.

1.4 LAWS AND REGULATIONS GOVERNING SOLID WASTE MANAGEMENT

Solid waste management activities in the County are governed by federal, state, and local laws and regulations. Federal solid waste management laws and regulations provide the framework on which solid waste activities throughout the nation are conducted. However, federal authority in the County is limited. Federal authority to implement federal laws and regulations is given to the state. The County's solid waste program and ordinances must meet or exceed the solid waste laws and regulations of the state.

1.4.1 Federal Laws and Regulations

The major federal statutes that affect local solid waste management are provided in Table 1.1. Foremost among the federal statutes listed is the Resource Conservation and Recovery Act (RCRA) of 1976, as amended. This law provides federal guidelines and standards for the environmentally sound reuse, handling and disposal of solid wastes. Subtitle D of RCRA provides federal standards for municipal solid waste (MSW) facilities, including requirements relating to the location, design, operation, ground water monitoring, closure and post-closure management and financial assurance criteria for municipal sanitary landfills.

The portions of RCRA that directly address solid waste management are in Title 42, Chapter 82, Sections 6901-6992k of the United States Code. Specific sections relevant to solid waste management activities in the County, as well as the preparation of the Plan, are

Sections 6941-6949a, entitled “State or Regional Solid Waste Plans”. The objectives, as stated in Section 6941, are to:

> "...assist in developing and encouraging methods for the disposal of solid waste which are environmentally sound and which maximize the utilization of valuable resources including energy and materials which are recoverable from solid waste and to encourage resource conservation. Such objectives are to be accomplished through federal technical and financial assistance to states or regional authorities for comprehensive planning pursuant to federal guidelines designed to foster cooperation among federal, state, and local governments and private industry."

Under Section 6942 of RCRA, the Federal government must develop guidelines to assist in the development of state solid waste management plans that contain methods for achieving the objectives defined in Section 6941. These guidelines must consider:

(1) the varying regional, geologic, hydrologic, climatic, and other circumstances under which different solid waste practices are required to ensure the reasonable protection of the quality of the ground and surface waters from leachate contamination, the reasonable protection of the quality of the surface waters from surface runoff contamination, and the reasonable protection of ambient air quality;

(2) characteristics and conditions of collection, storage, processing, and disposal operating methods, techniques and practices, and location of facilities where such operating methods, techniques, and practices are conducted, taking into account the nature of the material to be processed;

(3) methods for closing or upgrading disposal sites for purposes of eliminating potential health hazards;

(4) population density, distribution, and projected growth;

Table 1.1
Summary of Major Federal Statutes Affecting Solid Waste Management

Resource Conservation and Recovery Act:

A primary objective of this Act is to promote recycling and reuse of recoverable materials. The Act also provides guidelines for environmentally sound hauling and disposal of hazardous and non-hazardous solid waste. Subtitle D of the Act specifies criteria for MSW landfills.

Comprehensive Environmental Response, Compensation and Liability Act (Superfund):

Establishes programs for the identification and remediation of waste disposal sites containing hazardous substances; establishes standards for clean-up efforts and disposal of waste; and provides a mechanism for assigning liability for contaminated sites.

Clean Water Act:

Section 402 of this act establishes the National Pollutant Discharge Elimination System (NPDES) program to address the discharge of wastewater and runoff from solid waste management facilities into surface waters. The construction of facilities that may impact any rivers, lakes, marshes, swamps or wetlands of the United States is addressed by Section 404, which is administered by the Army Corps of Engineers. Section 405 addresses the disposal of wastewater treatment biosolids.

Clean Air Act:

Title I of the CAA addresses emissions from landfills and authorizes regulations on collection and control of those emissions. Title V of the CAA addresses the potential-to-emit pollutants and authorizes permitting regulations for major polluters. Landfill facilities are subject to Title I and are required to obtain a Title V permit, in addition to any facility that is a "major source" of pollutants.

Safe Drinking Water Act:

Establishes maximum contaminant levels for parameters included in ground water monitoring programs.

Federal Emergency Management Act:

Prohibits siting of landfills within the 100-year floodplain (Subtitle D allows for an exception if the unit will not restrict the flow on 100-year flood, reduce the temporary storage capacity of the floodplain, or result in wash out of solid waste).

(5) geographic, geologic, climatic, and hydrologic characteristics;

(6) the type and location of transportation;

(7) the profile of industries;

(8) the constituents and generation rates of waste;

(9) the political, economic, organizational, financial, and management problems affecting comprehensive solid waste management;

(10) types of resource recovery facilities and resource conservation systems which are appropriate; and

(11) available new and additional markets for recovered material.

The Code of Federal Regulations (CFR), Title 40 is entitled *Protection of Environment* and includes Subchapter I *Solid Wastes*. Table 1.2 displays the CFR location for major federal regulations relating to solid waste management.

In 1991, President George Bush issued Executive Order 12780, Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy. This order created the Federal Recycling Coordinator (designated by the EPA Administrator), the Council on Federal Recycling and Procurement Policy, and agency recycling coordinators within each of the major agencies, all in order to increase the level of recycling and purchase of recycled-content products.

In 1993 President Bill Clinton issued Executive Order 12873, Federal Acquisition, Waste Prevention, and Recycling. The order created the position of the Federal Environmental Executive and Agency Environmental Executives. These positions were

specifically intended to bolster support for recycling and the procurement of recycled-content products. This order also set the standard that all federal office paper is to contain at least 30 percent post-consumer recycled content.

1.4.2 Maryland Laws and Regulations

The primary laws of the State of Maryland that relate to solid waste management are contained in Article 25A *Chartered Counties of Maryland, the Environment Article and the Natural Resources Article*. Pursuant to *Article 25A, Chartered Counties of Maryland*, charter counties have the power to enact local laws for the protection and promotion of public safety, health, and welfare relating to the disposal of wastes. Title 9 of the *Environment Article* contains provisions for the planning and permitting of solid waste management and related facilities; it also provides for the regular submission of solid waste management plans by the counties and sets forth the minimum requirements of such plans and provides for a recycling office and requires counties to submit a recycling plan. Notable sections include the following:

- Section 9-204 defines the requirements for Refuse Disposal Permits issued by the MDE;

- Section 9-210 requires that specific wastes which are authorized for disposal in rubble landfills in the County be defined in the Plan prior to issuance of a permit by the State and provides prerequisites for the issuance of permits for refuse disposal systems;

- Section 9-211 describes the financial assurance requirements relating to the siting of solid waste facilities;

- Section 9-228 pertains to the storage, recycling and disposal of scrap tires through state efforts. Regulations for this program are in the Code of Maryland Regulations (COMAR) 26.04.08.

Title 9, Subtitle 17 of the Environment Article defines state recycling goals based on County population.

- Section 9-1703 requires that each county submit a recycling plan to the state when the Plan is submitted. This section also defines specific information to be included in both plans;

- Section 9-1708 establishes requirements for a natural road waste recycling facility.

The *Natural Resources Article* also contains several sections that relate to solid waste management planning. Notable provisions are included in Title 3, Subtitle 1 (Maryland Environmental Service); Title 9, Subtitle 4 of the Environment Article (Hazardous Waste Facility Siting Program); and Title 3, Subtitle 9 (Northeast Maryland Waste Disposal Authority).

The primary regulations governing solid waste management are contained in Title 26 (Department of the Environment), of COMAR. The pertinent sections of Title 26 are as follows:

- *Subtitle 03 - Water Supply, Sewerage, Solid Waste, and Pollution Control Planning and Funding*, which pertains to the development of county Comprehensive Solid Waste Management Plans;

- *Subtitle 04 - Regulation of Water Supply, Sewage Disposal, And Solid Waste*, which contains general provisions related to all aspects of solid waste management;

Table 1.2
Summary of Federal Regulations Affecting Solid Waste Management
(CFR, TITLE 40, SUBCHAPTER I)

Part 240:	**Guidelines for the Thermal Processing of Solid Wastes** Minimum performance levels for MSW incinerators.
Part 243:	**Guidelines for the Storage and Collection of Residential, Commercial and Institutional Solid Waste** Minimum performance levels for solid waste collection operations. Issues addressed include storage safety and equipment, and collection frequency and management.
Part 246:	**Source Separation for Materials Recovery Guidelines** Minimum actions recommended for the recovery of resources from solid wastes, including high grade paper, residential materials and corrugated containers.
Part 247:	**Guidelines for the Procurement of Products that Contain Recycled Materials** Recommended guidelines only. Procedures and specifications for procurement of products to increase the use of recycled material.
Part 255:	**Identification of Regions and Agencies for Solid Waste Management** Procedures for the identification of regional solid waste management planning districts.
Part 256:	**Guidelines for Development and Implementation of State Solid Waste Management Plans** Guidelines for development and implementation of state solid waste management plans.
Part 257:	**Criteria for the Classification of Solid Waste Disposal Facilities and Practices** Criteria to determine which solid waste facilities pose a reasonable probability of adverse effects on health or the environment. Facilities in violation will be considered open dumps. Does not apply to municipal landfills (covered under Part 258).
Part 258:	**Criteria for Municipal Solid Waste Landfills (Subtitle D Regulations)** Establishes minimum national criteria for the design and operation of MSW landfills. Includes location restrictions, operating criteria, design criteria, ground water monitoring and corrective action, closure and post-closure, and financial assurance criteria. Design standards apply only to new landfills and lateral expansions of existing facilities.

TABLE 1.2 (continued)

SUMMARY OF FEDERAL REGULATIONS AFFECTING SOLID WASTE MANAGEMENT (CFR, TITLE 40, SUBCHAPTER I)

Part 260: **Hazardous Waste Management System - General**
Provides definitions and a general overview of Parts 260 through 265.

Part 261: **Identification and Listing of Hazardous Waste**
Provides identification of those materials which are subject to regulation as hazardous wastes under Parts 270, 271 and 124.

Part 264: **Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities**
Establishes minimum national standards for the management of hazardous wastes.

Part 265: **Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal facilities**
Establishes minimum national standards that define the management of hazardous wastes during the period of interim status and until the certification of post-closure or closure of the facility.

Part 266: **Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Disposal Sites**
Establishes minimum national standards for the recyclable materials used in a manner to constitute disposal, hazardous waste burned for energy recovery, used oil burned for energy recovery, recyclable material used for precious metal recovery, and spent lead-acid batteries being reclaimed.

Part 270: **EPA Administered Permit Programs: The Hazardous Waste Permit Program**
Application requirements, standard permit conditions, monitoring and reporting requirements for EPA permitting for the treatment, storage and disposal of hazardous waste.

Part 271: **Requirements for Authorization of State Hazardous Waste Programs**
Identifies the requirements that state programs must meet to fulfill interim and final authorization as well as the procedures EPA uses to approve, revise and withdraw approval of State programs.

Part 272: **Approved State Hazardous Waste Programs**
Establishes the applicable State hazardous waste management programs.

Part 273: **Standards for Universal Waste Management**
Establishes the requirements for managing batteries, pesticides, mercury-containing equipments and lamps.

- *Subtitle 11 - Air Quality*, which contains requirements governing incinerators and asbestos disposal; and

- *Subtitle 13 - Disposal of Controlled Hazardous Substances*, which contains requirements for the management of CHSs.

Table 1.3 lists the relevant sections of the Annotated Code of Maryland that affect solid waste management. A summary of State regulations pertaining to solid waste management appears in Table 1.4.

1.4.3 Montgomery County Code

Regulations affecting solid waste management activities are present in nine chapters of the Montgomery County Code. Chapter 48 (Solid Wastes) specifically addresses solid waste management. A summary of the solid waste management regulations in each chapter of the County Code is provided below.

Chapter 3 (Air Quality Control) provides for the burning of leaves and household trash in certain parts of the County (Section 3-6).

Chapter 5 (Animal Control) provides for the collection and disposition of dead cats and dogs (Section 5-102) and for the disposal of carcasses of dead animals that had been exposed to rabies (Section 5-55).

Chapter 11B (Contract and Procurement) provides for the use of goods containing recycled materials for County government procurement.

Chapter 19 (Erosion, Sediment Control and Storm Water Management) governs erosion and sediment control, storm water management, and activities conducted in a floodplain.

Chapter 22 (Fire Safety Code) addresses scrap, waste, and junk yards and collection stations with particular reference to fire protection (Section 22-61); the collection and burning of shavings, sawdust and other refuse materials produced at lumber yards and woodworking plants (Section 22-64); and the storage and handling of combustible waste and refuse (Section 22-80).

Chapter 25 (Hospitals, Sanitariums, Nursing and Care Homes) provides for the storage and disposal of garbage and "infectious" wastes at health care facilities (Section 25-43).

Chapter 28 (Junk Dealers and Junk Yards) provides for the licensing of junk dealers, the conditions for operating a junk yard and a prohibition against the burning of tires and other materials that create obnoxious odors or excessive smoke (Section 28-1 to 7).

Chapter 31B (Noise Control) governs the generation of noise.

Table 1.3
Maryland Statutes Affecting Solid Waste Management

Chartered Counties of Maryland (Article 25A)

Environment

Title 4 Water Management

Title 6 Toxic, Carcinogenic, and Flammable Substances

Title 7 Hazardous Materials and Hazardous Substances

Title 9 Water, Ice and Sanitary Facilities

Subtitle 2 Regulation by State

Section 204 Installing, Altering, or Extending Water Supply Systems, Sewerage Systems, or Refuse Disposal Systems

Section 209 Landfill System Hearings

Section 211 Landfills, Incinerators, and Transfer Stations: Requirements for Security

Section 212 Landfill Systems - Options to Purchase

Section 226 Certification of Public Necessity Required for Hazardous Waste Landfill System

Section 228 Scrap Tires - Storage, Recycling, and Disposal

Subtitle 5 County Water and Sewerage Plans

Section 503 County plans - Required; review by governing body of county; revision or amendment

Section 506 County plans - Review by official planning agencies; progress reports; submitting reports to Department

Section 516 Special provisions for county plan in Montgomery County and Prince George's County - Information and assistance from Washington Suburban Sanitary Commission and Maryland-National Capital Park and Planning Commission

Subtitle 17 Office of Recycling

Section 1703 County Recycling Plans

Section 1708 Natural Wood Waste Processing and Recycling

Natural Resources

Title 3 Environmental Programs

Subtitle 1 Maryland Environmental Service

Subtitle 9 Northeast Maryland Waste Disposal Authority

Title 5 Forests and Parks

Table 1.4
Maryland Regulations Affecting Solid Waste Management

Title 08 Department of Natural Resources

The following sections must be considered in the siting of solid waste management facilities:

Subtitle 3, Chapter 8 Threatened and Endangered Species

Subtitle 19, Chapters 1-6 Forest Conservation

Title 26 Department of the Environment

Subtitle 3 Water Supply, Sewerage, Solid Waste, and Pollution Control Planning and Funding

Chapter 3 Development of County Comprehensive Solid Waste Management Plans:

Requires that each county maintain a current solid waste management plan and establishes the form for these plans.

Chapter 10 Financial Assistance for the Construction of Solid Waste Processing and Disposal Facilities

Stipulates the requirements, priority listing criteria, and ranking system for counties to receive financial assistance from the State.

Subtitle 4 Regulation of Water Supply, Sewage Disposal and Solid Waste

Chapter 6 Sewage Sludge Management

Chapter 7 Solid Waste Management

Requirements for permitting, designing, construction, operating, and closing (municipal, land clearing debris, rubble, and industrial waste) landfills, processing facilities, transfer stations, and incinerators.

Chapter 8 Scrap Tire Regulations

Chapter 9 Natural Wood Waste Recycling Facilities

Subtitle 8 Water Pollution

Subtitle 11 Air Quality

Subtitle 13 Disposal of Controlled Hazardous Substances

Subtitle17, Chapter 1 Erosion and Sediment Control

Subtitle17, Chapter 2 Storm water Management

Chapter 48 (Solid Wastes) provides for the management of solid waste[6], which defined as "all waste materials and debris, including, but not limited to the following: garbage, sludge, and medical/pathological wastes, debris from building construction, ashes, junk, industrial waste, dead animals, salvageable waste, dead or felled trees, uprooted tree stumps, slash, tree limbs, bushes, plants, leaves, grass, garden trimmings, street refuse, abandoned vehicles, machinery, bottles, cans, waste paper, cardboard, sawdust, and slash from sawmill operations, and all other waste materials." (Section 48-1). In addition, this Chapter provides for the licensing and permitting of the collection, transportation and disposal of solid waste (Sections 48-5, 48-19, 48-22) and authorizes the County to establish service and disposal facilities (Section 48-8). Specifically, it provides for the establishment of refuse collection districts (Section 48-29). Article V provides for a recycling program in accordance with the approved Plan, and adopted regulations. It contains compliance and enforcement provisions, and authorizes the County Executive to enter into contracts to procure recycling services necessary for the collection, processing or marketing of recyclables.

Chapter 59 (Zoning) provides definitions of solid waste facilities as well as a list of land use zones in which these facilities are permitted either by right or by special exception.

6 In Maryland regulation (COMAR 26.03.03.01), "Solid waste" also includes the “liquid” from industrial, commercial, mining, or agricultural operations, and from community activities….

Chapter 2: Population, Employment, and Land Use

This Chapter provides a description of Montgomery County, its people, its work force and major employers, and its land use practices. These factors give helpful information for projecting solid waste quantities and for planning the future needs of the solid waste system accordingly. Trends in population and employment are indicative of the quantity and the composition of waste generated. Land use practices and conditions also influence solid waste planning in that land use patterns may place constraints on the location of solid waste facilities. This chapter is organized as follows:

Acronyms and solid waste terms used in this chapter and throughout this document are defined in Appendix A.

2.1 POPULATION TRENDS

The M-NCPPC estimate of the County's population in 2007 is 958,800. During the 1980s, Montgomery County accounted for almost one-third of Maryland's population increase. Since 1989, Montgomery County has been the state's most populous jurisdiction. This period produced an annual growth rate of about 3.1 percent. While the growth rate during the 1990's was more moderate at about 1.54 percent annually, the Maryland State Office of Planning projects that the County will remain the most populous jurisdiction for the next 25 years. Two trends are attributed for this ongoing growth: record high levels of births to County residents; and strong immigration from other countries to the County.

Rapid growth in the number of County households occurred between 1970 and 1990. The rate of growth for households was almost twice the rate of total population growth in the same period. Damascus showed the greatest percent growth in households for the period. Over one-third of the County's gains in the number of households between 1980 and 1990 occurred along the Interstate-270 corridor in the Gaithersburg and Germantown areas. The Colesville area along U.S. Route 29 was second in growth with 18 percent. These three areas also had the most land available for new development. Combined, they accounted for 60 percent of total County growth in households. Between 1990 and 2000, total households in Montgomery County grew at approximately the same rate as population.

Another trend is the increase of racial diversity. According to M-NCPPC data, racial diversity continues to expand as the population grows in Montgomery County. During the County's high growth period, 1980 to 1990, when the total population increased by one-third, 60 percent of this growth was minority residents. Between 1990 and 2000, minorities accounted for 125 percent of the County's population growth and the share rose from 27 percent of the total population in 1990 to 40 percent in 2000[1].

Following national trends, Montgomery County has become a community with fewer persons per household. The average household size dropped from 3.30 to 2.64 persons per household during the past 20 years. This historical trend has the effect of increasing per capita waste generation rates, which are discussed in the waste projections of Chapter 3. Each household requires a defined level of service and generates fixed waste (e.g. telephone directories, newspapers, bills) unrelated to the number of persons domiciled. Therefore, more households in a given population will generate more waste.

1 http://www.mcparkandplanning.org/research/data_library/census2000/special_reports/SEmapbullets.pdf.

2.1.1 Population Projections

M-NCPPC projections suggest that population growth has slowed considerably since the 1980's with a forecasted annual growth rate averaging approximately 0.9 percent for each year from 2007-2016. Table 2.1 provides population projections for the years 2007-2016.

Table 2.1

Population of Montgomery County, Maryland 2007-2016

Year	Estimated County Population*
2007	958,800
2008	969, 200
2009	979,600
2010	990,000
2011	999,000
2012	1,008,000
2013	1,017,000
2014	1,026,000
2015	1,035,000
2016	1,043,000

*Source: M-NCPPC, Cooperative Forecast, Round 7.1 Revised June 2007, five year increments (2005, 2010, 2015, and 2020), intermediate years interpolated; conforms to current County Fiscal Plan.

2.1.2 Municipalities

Montgomery County has 19 incorporated municipalities. Approximately 155,000 persons reside in incorporated municipalities within Montgomery County. Table 2.2 lists municipalities in Montgomery County and their populations. Figure 2.1 depicts a map of Montgomery County and locations of its incorporated areas.

Table 2.2

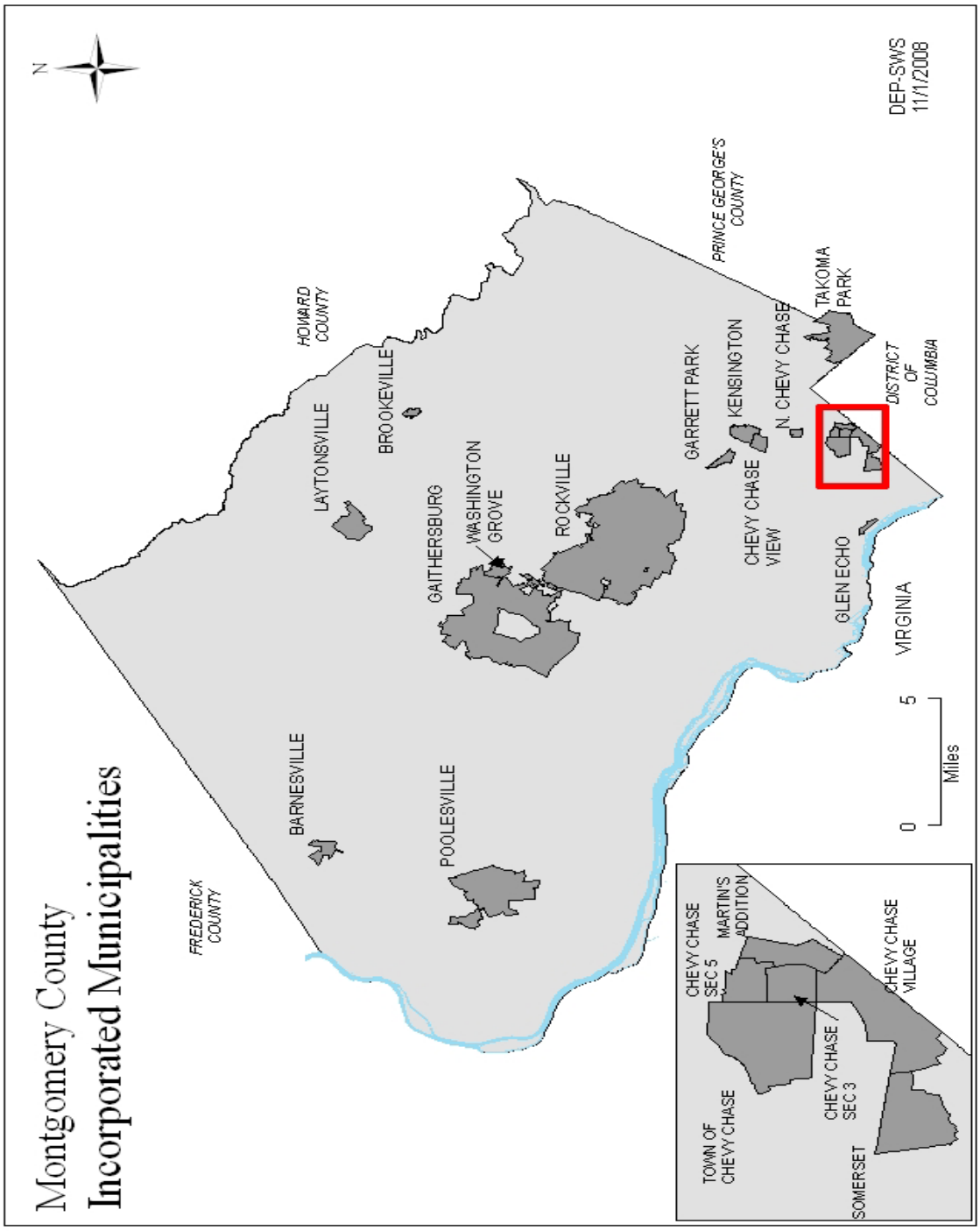
Population of Incorporated Municipalities in Montgomery County, Maryland

Incorporated Municipality	Year 2006 Population
Barnesville, Town of	188
Brookeville, Town of	128
Chevy Chase, Town of	2,772
Chevy Chase Section Five, Village of	652
Chevy Chase Section Three, Village of	785
Chevy Chase View, Town of	888
Chevy Chase Village, Town of	2,083
Gaithersburg, City of	57,934
Garrett Park, Town of	942
Glen Echo, Town of	251
Kensington, Town of	1,920
Laytonsville, Town of	335
Martin's Additions, Village of	890
North Chevy Chase, Village of	477
Poolesville, Town of	5,529
Rockville, City of	59,114
Somerset, Town of	1,153
Takoma Park, City of	18,497
Washington Grove, Town of	537

Source: U.S. Census Bureau, 2006

Figure 2.1

Map of Montgomery County including Municipalities



2.2 EMPLOYMENT TRENDS

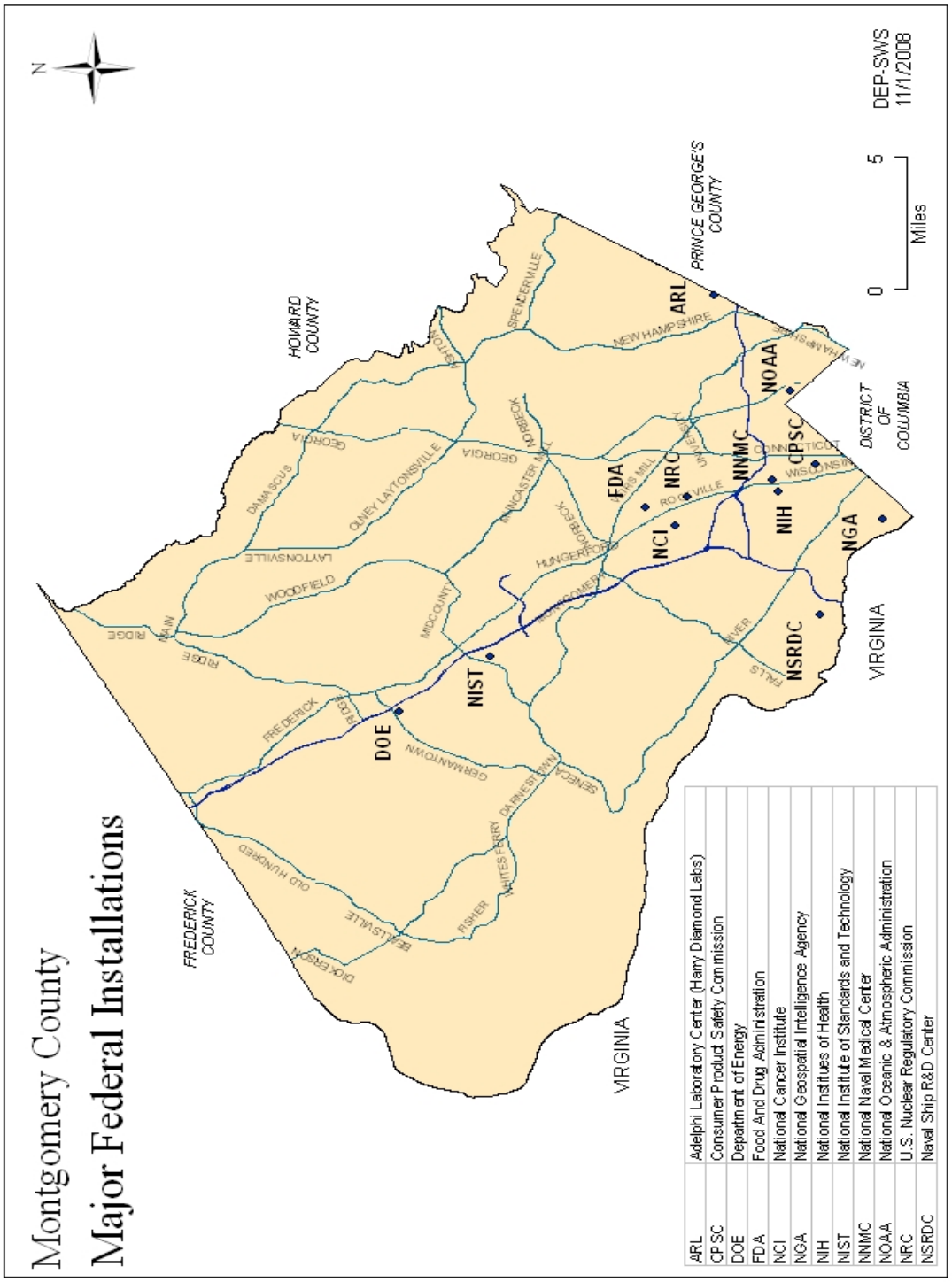
Montgomery County is the largest suburban employment center in the Metropolitan Washington Statistical Area, and is second only to Baltimore City within Maryland. During the last decade, the County led the State in employment growth. While the County experienced a decline in employment during the early 1990's, employment increased by the end of the decade. Over the next 10 years, the employment growth rate in the County is expected to be moderate.

The service sector is the largest category of employment in the County and exceeds federal, state and local government employment combined. This sector includes the following industries: business and repair; personal services; entertainment and recreation; professional health services; professional education services; and other miscellaneous services. Service employment increased 79 percent from 1980 to 1990. Business services were dominant. Retail trade also experienced significant growth during the 1980's, with one-quarter of the growth attributable to food and beverage businesses. During the first half of the 1990's, growth in the service sector slowed. At the same time, private sector employment in the areas of finance, insurance, real estate, transportation, communication, and public utilities jobs showed greater gains. During the second half of the 1990's, growth in the service sector increased 26 percent. Employment growth rate was 5.4 percent for the first five years of 2000s.

2.2.1 Employment Sectors

Over one-third of all jobs in the County are in the service industries, the largest sector of the County work force. Nearly one in five jobs in the County is related to retail trade. The Federal Government is the third largest employment sector in the County as well as the largest single employer in the County. The locations of Federal installations in the County are provided in Figure 2.2.

Figure 2.2 Map of Montgomery County including Federal Installations



2.2.2 Employment Projections

An economic recession in the early 1990's resulted in the loss of 20,000 jobs in the County. A recovery began in 1992, with employment growth continuing through 2006. M-NCPPC forecasts at-place employment (the number of positions located in the County) to grow at an average annual rate of 2.60 percent from 2008 to 2010, and then slow to about 1.25 percent per year from 2010 to 2016, resulting in a projected employment in the year 2016 of 587,000. Table 2.3 shows M-NCPPC "Round 7.1" projections for at-place employment for the years 2007 to 2016.

Table 2.3

At-Place Employment, Montgomery County, Maryland 2007-2016

Year	Estimated County Employment*
2007	518,000
2008	527,000
2009	536,000
2010	545,000
2011	552,000
2012	559,000
2013	566,000
2014	573,000
2015	580,000
2016	587,000

*Source: M-NCPPC, Cooperative Forecast, Round 7.1 Revised June 2007 five year increments (2005, 2010, 2015, 2020), intermediate years interpolated; conforms to current County Fiscal Plan,

2.3 ZONING AND COMPREHENSIVE LAND USE

Land use policies in the County are implemented through planning and zoning decisions. Land use policies directly affect solid waste generation and management, both in terms of the quantity and type of waste generated as well as the properties on which solid waste management facilities may be located.

As stated in Chapter 1 of this Plan, the County's solid waste management goals and objectives conform to State and County land use plans by planning for the quantity of solid waste which must be processed. Waste reduction and recycling reduce the County's need to identify new land for landfills and other solid waste disposal facilities. The use of an out-of-County landfill also supports County land use plans.

The County comprehensive land use plan, *"A General Plan for the Maryland-Washington Regional District in Montgomery and Prince George's Counties, as amended",* (the General Plan) was adopted in 1964 and most recently revised in 1993. The General Plan also has been amended and amplified over the years by a series of master plans, sector plans, and functional plans. The General Plan includes the policy that the County will be developed on a wedges and corridors approach, with more density concentrated near major transportation corridors interspersed by wedges of large open space and farmland. The County is divided up into 27 planning areas as illustrated in Figure 2.3. For each planning area, a Master Plan must be adopted and reviewed periodically.

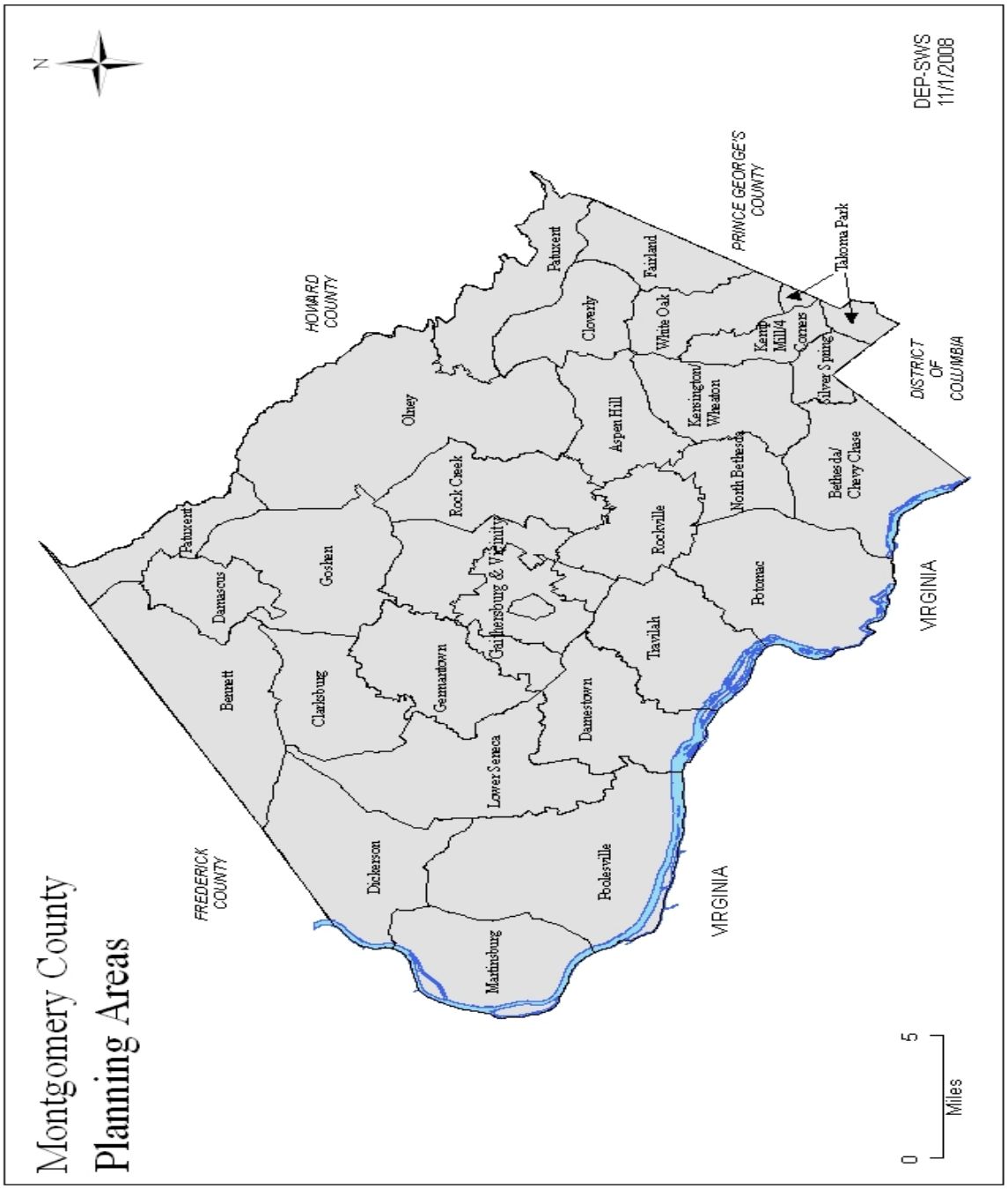
"A General Plan Refinement of the Goals and Objectives of Montgomery County," dated December 1993, was approved by the County Council and adopted by M-NCPPC. Objective 9 in the Environment Chapter of the General Plan Refinement states: "Provide an adequate, self-sufficient, well-monitored, and ecologically sound system for the management of Montgomery County's solid wastes." The following strategies are listed to accomplish this objective:

- "Provide appropriate industrially zoned land necessary to support present and future waste management facilities, including local recycling;

- Consider land use implications when developing a comprehensive solid waste management program;
- Minimize the environmental and other negative impacts of facilities that handle waste products through proper siting and design;
- Explore source reduction of waste through means such as charging collection fees in proportion to the amount of trash produced;
- Increase and promote the public and private use of recycled goods so that the amount of land devoted to land fills is minimized; and
- Cooperate with neighboring jurisdictions in sharing management practices and devising regional waste management strategies so that efficient solutions to waste management can be achieved."

Figure 2.3

Map of Montgomery County Planning Areas



2.3.1 Zoning Requirements Affecting Solid Waste Activities

Chapter 59 of the County Code defines zoning requirements and establishes zones designating agricultural, residential, commercial, industrial, or a mixture of uses at specified densities. Certain uses are permitted or allowed by special exceptions approved on a case-by-case basis by the Board of Appeals. This Board reviews and holds public hearings on applications for special exceptions. The Board of Appeals also considers variance requests relating to deviations from prescribed limitations such as setbacks and height restrictions. A zoning text amendment is the mechanism by which the County Council can modify the Zoning Ordinance and authorize changes, additions, or deletions to zones or standards governing the use of zones.

The Zoning Ordinance limits private recycling facilities to specific industrial zones. The Zoning Ordinance limits privately owned transfer stations, landfills and incinerators to the I-2 heavy industrial zone if the County Board of Appeals grants a special exception determining that the specific I-2 parcel is suitable for a transfer station, landfill or incinerator. The County Zoning Ordinance expressly prohibits certain uses, including privately owned and operated incinerators, in industrial zones.[2] Privately owned incinerators are allowed in industrial zones only if publicly operated. The County historically has reserved relatively small amounts of land for industrial uses.

2.3.2 Agricultural Preservation

Preservation of agriculture is a high priority in the County. More than 90,000 acres of the County's 316,800 acres are actively farmed. The County and the State have programs for the preservation of agricultural land. Both the State and the County have established agricultural easements using property deeds that carry restrictions to

2 See Section 59-C-5.22 of the County Zoning Ordinance.

limit non-agricultural use of the property while also providing "right-to-farm protection". The County also applied the Rural Density Transfer (RDT) zone to most agricultural areas in the northern and western parts of the County. Property owned in the RDT zone may trade Transferable Development Rights (TDRs) from their agricultural zone to redirect development to certain non-agricultural sections of the County. Development in the RDT zone is limited to one dwelling per 25 acres. Historically, most landfill candidate sites have been located within RDT zoned areas.

2.3.3 Environmental Safeguards

Guidelines and regulations ensuring environmental safeguards regarding land use are applied to projects and specific properties undergoing "development review". Development review is a process managed by M-NCPPC through which subdivision and other development projects are evaluated by staff prior to consideration of these projects by the Planning Board. This review process considers issues of environmentally sensitive areas (stream valleys, wetlands), air quality, noise, water quality, conservation, and open space. The process can reduce the environmentally negative effects of construction, such as improper grading, needless loss of trees, and improper flood plain development. The County has promulgated a tree ordinance placing requirements on developers to minimize tree removal. All of these requirements may be in addition to requirements established by construction, building and occupancy permits.

Public facilities are subject to review by M-NCPPC in a process known as Mandatory Referral. Pursuant to the Mandatory Referral requirement, M-NCPPC reviews and makes recommendations regarding plans for new County owned solid waste facilities.

2.3.4 Transportation Considerations for Solid Waste Activities

Solid waste collection vehicles must reach and service all areas of the County. In doing so, solid waste vehicles must safely navigate a wide range of road surfaces and conditions in a manner that minimizes noise, odor and litter disturbances to the community.

Chapter 48 of the County Code and regulations administered by DEP regulate the operation of solid waste vehicles to address potential nuisance and safety issues. County regulations require that solid waste collection and transfer vehicles must be inspected and registered. Loads of solid waste must be contained or covered during transportation to minimize litter. Collection of solid waste cannot occur before 7 a.m. near residential neighborhoods. State and local transportation laws and regulations impose other safety requirements regarding the handling of heavy vehicles, such as speed and weight limits.

There are additional restrictions to transporting solid waste on County roads. Department of Transportation prohibits truck traffic on specified roads in the County. In addition, any new development, including a waste acceptance facility that would generate more than 50 peak hour vehicle trips would require review by M-NCPPC pursuant to the Adequate Public Facilities Ordinance. In such cases, M-NCPPC may recommend improvements to the transportation network.

The County has a policy to minimize solid waste traffic on County roads. In the 1980's, the County constructed the Solid Waste Transfer Station to reduce the number of vehicle trips to the Oaks Landfill. In 1995, the County established a rail haul system to transport solid waste from the Transfer Station to the RRF in order to reduce solid waste truck traffic through communities. In 1997, the County entered into a long-term contract with Brunswick Waste Management Facility, Inc. for disposal of RRF ash

bypass waste and non-processible wastes that primarily uses rail transport of these materials. A map of major roadways in the County appears as Figure 2.4.

2.4 SUBSIDIARY PLANS

Title 26.03.03.02B of COMAR requires that "each County plan shall include all or part of the subsidiary plans of the towns, municipal corporations, sanitary districts, privately owned facilities and local, State and federal agencies having existing, planned or programmed development with the county to the extent that these inclusions shall promote public health, safety and welfare." No subsidiary solid waste management plans have been received by the County for inclusion in this Plan.

Figure 2.4

Map of Major Roadways in Montgomery County

Chapter 3: Solid Waste Generation, Collection, and Acceptance Systems

This section addresses all of the solid waste categories contained in COMAR 26.03.03.03.D (a) through (l). A series of data tables are provided with the existing and projected annual generation of each waste category. The section also addresses the collection methods and solid waste acceptance facilities that are available to manage each solid waste category.

Acronyms and solid waste terms used in this chapter and throughout this document are defined in Appendix A.

This chapter is organized into the following subsections:

3.1 SOLID WASTE GENERATION

Table 3.1 displays FY 2007 solid waste generation measurements by waste type as well as solid waste generation projections for the Fiscal Years 2011 and 2016. Subsequent sections of this chapter repeat portions of Table 3.1 for further analysis of each major category of solid waste. All years referred to in these tables are fiscal years, unless stated otherwise.

As specified later in this section, most ten-year solid waste generation projections are calculated using M-NCPPC forecasts for County population and employment. These forecasts are included as Table 2.1 and Table 2.3 in Chapter 2 of this Plan.

The solid waste generation tables also distinguish between tonnages accepted at County operated solid waste management facilities versus facilities that are not part of the County-run solid waste management system described in Chapter 5 of this plan. Solid waste tonnages that are included in the tables below as being processed at "non-county facilities" are processed at privately operated facilities, most of which are located outside the boundaries of Montgomery County.

Data included in this Plan are gathered from a variety of sources. Certain solid waste data are obtained directly from scales at County facilities. For example, tons of refuse processed at the Transfer Station and tons of recyclables handled at the MRF are recorded on-site. Other data points are derived from external sources. The County requires private solid waste collectors to report the amount of refuse and recyclables transported to non-county facilities. Periodic studies commissioned by the County provide other key data points such as the changes in per capita or per employee waste generation rates, the relative composition of wastes in the disposal stream, and the degree of backyard composting and grasscycling occurring in the County.

3.1.1 Municipal Solid Waste (Residential, Commercial, Industrial, and Institutional)

Municipal Solid Waste (MSW) consists of solid waste generated at residences, commercial establishments and institutions. MSW does not include land clearing and demolition debris, controlled hazardous substances, automobiles, biosolids or other solid waste streams requiring specialized handling. These other solid waste types are discussed later in this chapter.

Table 3.1

Municipal Solid Waste Generation in Montgomery County, Maryland (Tons/Yr)

	2007 Processed at County Gov't Facilities	2007 Processed at Private Facilities	2007 Estimated Generation In County	2011 Projected** Generation In County	2016 Projected** Generation In County
Municipal Solid Waste (MSW)	**768,087**	**454,388**	**1,222,475**	**1,288,391**	**1,357,896**
(a) Residential (Single-Family and Muti-Family)	**472,819**	**131,294**	**604,113**	**629,442**	**657,165**
Recycled	192,889	104,613	297,502	312,380	322,463
Disposed	279,930	26,681	306,611	317,062	334,702
Non-Residential	**295,268**	**323,094**	**618,362**	**658,949**	**700,731**
Recycled	40,512	190,173	230,685	297,018	315,833
Disposed	254,756	132,921	387,677	361,931	384,898
State-Required Breakout of Non-Residential MSW					
(b) Commercial (61.1% of Non-Residential)	**180,497**	**197,508**	**378,005**	**402,816**	**428,357**
Recycled	24,765	116,253	141,018	181,567	193,069
Disposed	155,732	81,255	236,987	221,248	235,288
(c) Industrial (33.1% of Non-Residential)	**97,674**	**106,880**	**204,554**	**217,980**	**231,802**
Recycled	13,401	62,909	76,311	98,254	104,478
Disposed	84,273	43,970	128,243	119,727	127,324
(d) Institutional (5.8% of Non-Residential)	**17,096**	**18,707**	**35,803**	**38,153**	**40,572**
Recycled	2,346	11,011	13,357	17,197	18,287
Disposed	14,750	7,696	22,446	20,956	22,286
(e) Land Clearing and Construction & Demolition Debris (C&D)	**139,227**	**102,786**	**242,013**	**252,160**	**263,266**
(f) Hazardous Waste	**140**	**13,764**	**14,000**	**14,899**	**15,844**
(g) Special Medical Waste	**0**	**1,435**	**1,435**	**1,527**	**1,624**
(h) Animal Carcass	**0**	**236**	**236**	**246**	**257**
(i) Bulky Waste Scrap Metal [included in (a) through (d) above]	**8,202**	**50,015**	**58,218**	**60,659**	**63,330**
(j) Automobiles	**0**	**58,900**	**58,900**	**61,370**	**64,072**
(k) Scrap Tires	**213**	**9,280**	**9,493**	**9,891**	**10,326**
(kk) Portion included in (a) through (d) above	213	4,378	4,590	**4,783**	**4,993**
(l) Biosolids	**0**	**6,046**	**6,046**	**6,299**	**6,577**
(m) Septage	**0**	**18,000**	**18,000**	**18,000**	**18,000**
TOTAL WASTE (all categories) *	**768,227**	**552,769**	**1,321,092**	**1,390,733**	**1,464,270**

Notes:

* Sum of (a) through (m) less (i) less (kk).

** Projections assume zero growth in per capita and per employee waste generation rates.

The recycling rate calculation report to the County Council is developed using a comprehensive accounting methodology that incorporates all data available on County MSW flows. Appendix C displays the result for the County for Fiscal Year 2007. The calculation is necessarily conservative in that it assumes that all waste burned at the RRF is MSW.

Table 3.2 displays MSW recycled and disposed according to four categories specified in COMAR 26.03.03.03.D "residential waste", "commercial waste", "industrial waste" and "institutional waste".

The total County MSW generation follows the methodology detailed in Appendix C which yields 1,222,475 tons, not including any amounts of C&D burned at the RRF. The County estimates that 42,583 tons of C&D were burned at the RRF in FY07[1]. Generation projections for Fiscal Years 2011 and 2016 are adjusted for increases in County population and employment only.

Table 3.2

Municipal Solid Waste Generation in Montgomery County, Maryland (Tons/Yr)

Residential, Commercial, Industrial, and Institutional Sectors

	2007 Processed at County Gov't Facilities	2007 Processed at Private Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
(a) Residential (Single-Family and Multi-Family)	**472,819**	**131,294**	**604,113**	**629,442**	**657,165**
Recycled	192,889	104,613	297,502	312,380	322,463
Disposed	279,930	26,681	306,611	317,062	334,702
(b) Commercial (61.1% of Non-Residential)	**180,497**	**197,508**	**378,005**	**402,816**	**428,357**
Recycled	24,765	116,253	141,018	181,567	193,069
Disposed	155,732	81,255	236,987	221,248	235,288
(c) Industrial (33.1% of Non-Residential)	**97,674**	**106,880**	**204,554**	**217,980**	**231,802**
Recycled	13,401	62,909	76,311	98,254	104,478
Disposed	84,273	43,970	128,243	119,727	127,324
(d) Institutional (5.8% of Non-Residential)	**17,096**	**18,707**	**35,803**	**38,153**	**40,572**
Recycled	2,346	11,011	13,357	17,197	18,287
Disposed	14,750	7,696	22,446	20,956	22,286
Municipal Solid Waste (MSW)	**768,087**	**454,388**	**1,222,475**	**1,288,391**	**1,357,896**
		Recycling Rate*	**43.2%**	**47.3%**	**47.0%**

* Projected recycling is conservative. It assumes approval of ER18-04, but it counts C&D burned in RRF as MSW, thus overstating recycling rate denominator.

1 See Appendix C.

Accounting of MSW generated in the County is independent of the location at which the MSW was processed. Refuse generated in the County may be processed at the County's Transfer Station or at a private facility located outside the County. No privately operated MSW disposal facilities exist within the County. County recycling and composting facilities primarily handle materials generated by the single family residential sector. Recyclables generated by the multi-family residential and non-residential sectors are processed at both private facilities and the County MRF. Privately operated recycling facilities are located both within the County and in adjacent counties.

The County validates generation rates by analyzing public and private sector waste disposal and recycling practices. Executive Regulation 58-92 requires that all private haulers that are permitted to transport solid waste in the County must submit semiannual reports about their activity. Reports must specify: (1) quantities of recyclables by categories of material; (2) quantities of solid waste; and (3) quantities of special wastes including Controlled Hazardous Substances (CHS) and construction and demolition debris. Reports must indicate whether the material is delivered to destinations located inside or outside the County and must distinguish MSW from C&D.

3.1.1.1 Residential Solid Wastes

Residential solid waste consists of household waste generated both from single family and multi-family (e.g., apartment, condominium) residences. As shown previously in Table 3.1, residential solid waste generation in Fiscal Year 2007 was 604,113 tons. This total residential waste generation figure includes processed MSW as well as solid waste recycled or composted. These data have been derived using a combination of weight reports from the County's Solid Waste Transfer Station, MRF, and Composting Facility records supplemented with information provided by licensed solid waste haulers.

In Fiscal Year 2007, the residential sector achieved a recycling rate of approximately 49.3 percent.[2] The overall residential recycling rate is based on a single family residential recycling rate of approximately 56.2 percent and a multi-family residential recycling rate of approximately 13.5 percent.

3.1.1.2 Commercial, Industrial and Institutional Sources

Commercial, industrial and institutional solid wastes comprise all MSW generated from non-residential sources. Commercial solid waste generally consists of refuse and recyclables generated by offices, bars and restaurants, retail and wholesale establishments and hotels. Industrial solid waste consists of refuse and recyclables generated by manufacturing, transportation and utility activities. Institutional solid waste consists of refuse and recyclables generated primarily from health service, government and education activities.

The regulation governing this plan's content requires distinction of "commercial", "industrial" and "institutional" MSW generation. Montgomery County estimates non-residential waste generation according to fifty-one land use types as recorded by the State Department of Assessments and Taxation. Aggregation of those land uses into commercial, industrial and institutional categories generated the following distribution of non-residential waste generation among the "commercial", "industrial" and "institutional" categories:

2 See Section 3.1.10 for a comparison of County and State recycling rate calculations.

Sector	Percent of Non-Residential Waste Stream
Commercial	61.1%
Industrial	33.1%
Institutional	5.8%

Non-residential waste generation figures include both waste disposed and waste recycled. As indicated as the sum of lines (b) through (d) in Table 3.2 shown previously, non-residential waste generation in Fiscal Year 2007 was 618,362 tons. This includes 42,583 tons of C&D estimated to have been burned at the RRF during FY07 and presumed to be MSW (as discussed earlier). Commercial, industrial and institutional waste generation tonnages displayed in Table 3.2 shown previously reflect an allocation of total non-residential waste generation in proportion to the above distribution. Total non-residential waste generation data have been derived using weight reports from the County's Solid Waste Transfer Station, along with information provided by licensed solid waste haulers.

In Fiscal Year 2007, the non-residential sector is estimated to have achieved a recycling rate of 43.2 percent. Table 3.2 shown previously projects non-residential waste generation for the 10-year time horizon of this Plan using the per employee waste generation rate applied to County employment projections. Non-residential waste generation is projected to increase at the same rate.

3.1.2 Land Clearing and Construction and Demolition Debris (C&D)

Land clearing and demolition debris includes rock fragments, soil, masonry, concrete, asphalt, brick, glass, plastics, mortar, wood, paper and metals. When consolidated from a construction or demolition site, these materials are not MSW.

As indicated in Table 3.3, land clearing and demolition debris generation in the County was 242,013 tons in FY 2007.

Based on County and private sector scale records, private C&D disposal activity is reported to the County under Executive Regulation 52-98AM. Assuming that generation is proportional with population and employment change, projected total generation of land clearing and C&D for the Year 2016 is 263,266 tons. This is without regard for economic condition influences.

Table 3.3

Land Clearing and Demolition Debris Generation in Montgomery County (Tons/Yr)

	2007 Processed at County Gov't Facilities	2007 Processed at Private Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
(e) Land Clearing and Construction & Demolition Debris (C&D)	139,227	102,786	242,013	252,160	263,266

Approximately 58 percent of all land clearing and demolition debris generated in the County was brought to the County Transfer Station in FY 2007; about 42 percent was transported for processing at out-of-County facilities. County road construction and maintenance activities generate about 40,000 tons per year that is managed as non-processible solid waste.

3.1.3 Controlled Hazardous Substances

As indicated in Table 3.4, Controlled Hazardous Substances (CHS)[3] include hazardous waste as defined in COMAR 26.13.01 and special medical wastes as defined in COMAR 26.13.11. These solid wastes require separate collection and disposal from MSW.

3.1.3.1 Hazardous Waste

A hazardous waste as defined in COMAR 26.13.01 is a solid waste which, because of its quantity, concentrations, or chemical, or physical characteristics, poses a substantial present or potential hazard to human health or the environment. In general, State regulations fully regulate any hazardous waste generator that: generates 100 kilograms or more of hazardous waste per month; generates 1 kilogram or more of acute hazardous waste per month; or, stores 100 kilograms or more of hazardous waste on site.[4]

The estimated 14,000 tons of hazardous wastes generated in the County shown in Table 3.4 are derived from a 1995 survey, conducted by MDE, of large quantity hazardous waste generators. Hazardous waste is projected to increase at the same rate as County employment growth. The projected County generation for the Year 2016 is 15,844 tons.

The MDE regulates Treatment, Storage, or Disposal (TSD) facilities of hazardous waste and requires the certification of drivers and vehicles that transport hazardous waste. There are two facilities in the County with TSD permits to store hazardous waste

3 For regulatory definition, see Section 7-201, the Environment Article of the Annotated Code of Maryland.

4 For a complete description of State controlled hazardous waste generator requirements, see COMAR 26.13.02.

for up to 90 days: the National Institutes of Health in Bethesda and the National Naval Medical Command in Bethesda. The Naval Surface Warfare Center in White Oak and the Safety-Kleen Corporation in Silver Spring were TSD permitted facilities, but are no longer operational. All hazardous waste generated and stored in the County is shipped out of the County for treatment, storage and disposal.

Table 3.4

Controlled Hazardous Substances Generation in Montgomery County

	2007 Processed at County Gov't Facilities	2007 Processed at Private Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
(f) Hazardous Waste	140	13,764	14,000	14,899	15,844
(g) Special Medical Waste	0	1,435	1,435	1,527	1,624

Household Hazardous Wastes (HHW) as well as hazardous waste produced in small quantities by non-residential generators are not included in the COMAR 26.13.01 definition of hazardous wastes. See Chapter 5 of this Plan for a description of County efforts to manage household and small quantity generator hazardous wastes.

3.1.3.2 Special Medical Waste

Special medical wastes as defined in COMAR 26.13.11 include infectious or potentially infectious materials that result from contact with persons or animals suspected or diagnosed as being or having been exposed to contagious disease organisms.

Special medical waste is generated by hospitals, doctor offices, laboratories, and research institutions. Five accredited hospitals are located within the County: Holy Cross Hospital in Silver Spring, Suburban Hospital in Bethesda, Washington Adventist Hospital

in Takoma Park, Montgomery General Hospital in Olney and Shady Grove Adventist Hospital near Gaithersburg. Three large federal hospitals and medical research institutions are located in Montgomery County: Walter Reed Army Medical Center Annex in Forest Glen, and the National Naval Medical Hospital and the National Institutes of Health, both in Bethesda.

Special medical waste generation in the County is based on hauler data. The quantity of special medical waste transported by licensed haulers in Fiscal Year 2007 was 1,435 tons. Special medical waste generation is projected to increase at the same rate as County employment growth. Therefore, the quantity generated in the Year 2016 is projected to be 1,624 tons. Data is not available for the amount of special medical waste generated and processed at on-site facilities in the County.

On-site special medical waste incinerators are required to have operating permits issued by MDE. At present, there is no permitted special medical waste incinerator operated in the County.

State law provides for a residential use (e.g., home insulin user) exemption for disposal of home medication material as MSW. Home generated medical waste is not regulated as special medical waste, as defined in COMAR 26.13.11.

3.1.4 Animal Carcass

Animal carcasses are a COMAR listed solid waste from various sources including: domestic pets, roadways, County animal shelters, research facilities, farms, restaurants and groceries.

There is no animal carcass solid waste rendering facilities located in the County. Most farm animal carcasses, and bone and fat from restaurants, groceries, and other food services are recycled by rendering facilities in Virginia, and Pennsylvania. Animal shelter and road-kill carcasses are processed at out-of-County special medical waste incinerators or pet crematoria. One privately owned pet crematorium operates under State permit in the County.

In 2007, animal carcasses were estimated to comprise 236 tons of solid waste generated in the County (Table 3.5). This is based approximately 200 tons of dead animals estimated by the contractor to the County police department as collected from County roadways, plus 36 tons of dead animal carcasses reported by the Montgomery County Animal Shelter. For the purposes of this Plan, that 2007 animal carcass waste tonnage is projected to increase in the future in proportion to residential population.

Table 3.5

Animal Carcass Solid Waste Generation in Montgomery County

	2007 Processed at County Gov't Facilities	2007 Processed at Private Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
(h) Animal Carcass	0	236	236	246	257

3.1.5 Bulky Waste, Automobiles and Scrap Tires

3.1.5.1 Bulky Waste

As indicated In Table 3.6, approximately 58,218 tons of bulky wastes were generated in Fiscal Year 2007. Bulky wastes include large household appliances (also known as white goods), and large scrap metal. The County recycles over approximately 8,200 tons of metals annually through its scrap metal program. Residents of single family homes may recycle white goods, swing sets, metal furniture, railings, disassembled sheds and other household metal items through the County's curbside collection program. In addition, the County "Don't Dump, Donate" program accepts about 25 tons annually of reusable building materials which are provided for low income housing projects.

Private collectors report delivering approximately 50,015 tons per year of scrap metal to private facilities in the County. In Fiscal Year 2007 the County received over 8,000 tons of "white goods" at the Transfer Station. Bulky waste generation is projected to increase consistent with population growth.

Table 3.6

Bulky Waste, Scrap Automobile and Scrap Tire Waste Generation in Montgomery County (Tons/Yr)

	2007 Processed at County Gov't Facilities	2007 Processed at Private Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
(i) Bulky Waste Scrap Metal	8,202	50,015	58,218	60,659	63,330
(j) Automobiles	0	58,900	58,900	61,370	64,072
(k) Scrap Tires	213	9,280	9,493	9,891	10,326

3.1.5.2 Automobiles

The regulation of automobiles, other motor vehicles and vehicle junk yards is under the jurisdiction of the State's Motor Vehicle Administration. Line (j) of Table 3.6 indicates that 58,900 tons of scrap automobiles were generated in Montgomery County in 2007. The Motor Vehicle Manufacturers Association reported national statistics that an average of 8,835,400 cars and 2,258,000 buses and trucks were junked nationally, on average, from 1986 to 1990. This Plan assumes that the County generates scrap automobiles in proportion to national trends. M-NCPPC reports that Montgomery County's population equals 0.31 percent of total U.S. population. The scrap generation rate is derived from County population as a percent of national population and an assumed average vehicle weight of 2850 lbs. per car and 6,170 lbs. per bus and truck.

There are 5 private businesses in the County that process junked vehicles. Scrap automobiles are hauled to automobile recyclers located outside of the County. The Montgomery County Police disposes of abandoned vehicles through public auction. The police process fewer than ten junk automobiles per year, which are sold to scrap dealers.

Future scrap automobile generation is projected in proportion to M-NCPPC population.

3.1.5.3 Scrap Tires

Federal guidelines suggest that scrap tire generation follows population and results in one tire scrapped per capita per year. Based on this guideline, 962,000 tires were scrapped in the County in 2007. Using an average tire weight of 20 lbs. per tire, County scrap tire generation was approximately 9,493 tons in 2007 as shown previously in Table 3.6.

The State of Maryland Scrap Tire Law[5] prohibits the disposal of tires in landfills. Under the provisions of the Law, scrap tires are collected and managed through a State licensing system for the collection, storage, transportation and disposal of scrap tires. The State also regulates scrap tire recycling facilities. There are no permitted scrap tire recycling facilities located in the County. However, many auto service centers in the County arrange for private recycling of their customers' tires at facilities outside of the County.

County residents may drop off four or fewer scrap tires at the Solid Waste Transfer Station for recycling. In Fiscal Year 2007, the County received 213 tons of tires for recycling. MES transports scrap tires from the Transfer Station to one of several State permitted scrap tire recycling facilities.

3.1.6 Wastewater Treatment Biosolids

Biosolids are a COMAR listed solid waste that refers to municipal wastewater solids, formerly referred to as sewage sludge. Current detailed information on the County management of wastewater is available in the 2003 “Ten Year Comprehensive Water Supply and Sewerage Systems Plan.”

Biosolids are generated by the five waste water treatment plants (WWTP) that serve the County. Over 90 percent of the domestic wastewater that is discharged to the public sewerage system in the County, or 79 million gallons per day (mgd) in 2001, is treated at the Blue Plains WWTP. WSSC presently manages its share of biosolids from the Blue Plains WWTP through contracts for beneficial agricultural cropland applications.

5 Section 9-228, the Criminal Article of the Annotated Code of Maryland.

In February 1999, the WSSC stopped sending biosolids to the MCRCF and proceeded with actions that would allow for the permanent closure of the facility. WSSC has received approval from all local, state and Federal interests for the permanent closure of the MCRCF. Land application contracts are now being utilized to manage the entire WSSC share of biosolids from Blue Plains. The contractor determines the land application sites, since permits for biosolids are a requirement of the contractor at the time they submit a bid for this work. Historically, these land application sites have been located in rural Maryland and Virginia where the biosolids are applied as a fertilizer, generally for field crops of corn and soybeans. Wastewater treatment biosolids that are land applied in Maryland are subject to a Sewage Sludge Utilization Permit issued by MDE.

The four other WWTP facilities in the County are: Seneca, Damascus, Hyattstown, and Poolesville. Table 3.7 shows the total amount of biosolids generated at these WWTP facilities based on the 2007 average daily flows. The Fiscal Year 2007 average daily flows of these facilities are as follows:

Seneca WWTP	16.8	mgd
Damascus WWTP	0.86	mgd
Hyattstown WWTP	0.04	mgd
Poolesville WWTP	0.64	mgd

Current biosolids generation at the four WWTP facilities is estimated at 6,046 dry tons per year and can be estimated for the purposes of this plan to be approximately 6,577 dry tons per year by 2016.

Table 3.7

Biosolids Generation in Montgomery County (Dry Tons/Yr)

	2007 Processed at WSSC Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
(l) Biosolids	**6,046**	**6,046**	**6,299**	**6,577**

3.1.7 Septage

Approximately 50,000 homes in Montgomery County use a septic system rather than a public WWTP. In addition, about two dozen homes rely on sewage holding tanks. Septic system biosolids and sewage holding tanks are periodically pumped by private haulers permitted by WSSC. Pumped biosolids and sewage is discharged into the sanitary sewerage system at a controlled entry point located at the WSSC Muddy Branch facility. Table 3.8 shows the total County septage generation.

Using assumed tank capacities and discharge frequencies, the County estimates septage generation at approximately 18,000 wet tons annually. M-NCPPC projects that the number of homes on septic tanks is not expected to increase markedly over the next decade. Therefore, septic and holding tank sewage generation is projected to remain level through 2016.

Table 3.8

Septage Generation in Montgomery County (Wet Tons/Yr)

	2007 Processed at WSSC Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
(m) Septage	18,000	18,000	18,000	18,000

3.1.8 Other Wastes

3.1.8.1 RRF Ash

The County's RRF combusts MSW, reducing the amount of material requiring disposal by about 70 percent (weight). This residue is transported to a private landfill in Brunswick County, Virginia. Since the RRF first began processing waste in 1995, RRF residue ash has been periodically characterized following protocols established by the United States Environmental Protection Agency (EPA) and MDE. For each characterization event, a composite sample is aggregated from fourteen representative samples of ash collected over a seven day operations period. The samples are prepared and handled in accordance with EPA guidelines. Laboratory analysis is performed by an EPA certified laboratory following EPA procedures established for the Toxic Characteristics Leaching Procedure (TCLP). TCLP test results to date show that the RRF ash is a non-hazardous solid waste. Therefore, the ash may be recycled, or transported to a MSW landfill.

Table 3.9

Ash Produced at the RRF and Transported out-of-County (Tons)

Fiscal Year	2007	2011	2016
Total RRF Ash (Residue)	185,867	186,120	191,822

3.1.8.2 Agricultural waste

According to the University of Maryland Cooperative Extension Service, agricultural waste, including crop residue and animal manure in the County is generally land applied for beneficial crop use. Some crop residue is left on the field surface to reduce soil erosion. Manure is injected or plowed into cropland. Generation quantities are not available for agricultural waste and are considered insignificant sources of solid waste.

3.1.8.3 Mining waste

No generators of mining waste exist in the County.

3.1.8.4 Litter

The *Keep Montgomery County Beautiful* program of MCDOT generates annual litter collection of 7,000 tons.

3.1.8.5 Street sweepings

MCDOT and municipalities generate annual street sweepings of 3,000 tons.

3.1.8.6 Recreational wastes

M-NCPPC generates 1,300 tons annually of solid waste at County parks and from within M-NCPPC facility buildings.

3.1.8.7 Yellow Grease and Brown Grease

Yellow grease, comprised of used frying oils (typically from deep fryers at restaurants), is of growing interest as a potential energy resource, as is brown grease which is generated in grease traps at restaurants. It is estimated that 4,350 tons per year of yellow grease and 6,250 tons of brown grease are currently generated at County restaurants.[6]

3.1.9 Waste Importation and Exportation

3.1.9.1 Importation of Waste into the County

As a matter of policy, County operated solid waste facilities are used only for solid waste generated in the County (see Section 5.1.2.1.b). As a result, no MSW is imported from other jurisdictions to County operated solid waste facilities. With the exception of three active private recycling facilities, no major private solid waste facilities

6 Estimates contained in Council Resolution 16-402 which also established a Working Group to explore these materials and to report on the potential for their collection and processing into biodiesel type resources. The Report from that Work Group is due to be released after this Plan is required to be submitted to the State.

exist in Montgomery County that would attract waste generated outside the boundaries of the County (See Table 3.12 for complete list of solid waste facilities in County).

3.1.9.2 Exportation of Waste from the County

Approximately 20 percent of non-recycled MSW generated within Montgomery County is disposed of at facilities outside the County. In addition, 13 percent of MSW generated in the County is recycled at sites other than County-owned facilities (not including backyard composting), many of which are located outside of the County. Based on Table 3.1, approximately 42 percent of the C&D generated in the County is handled by the County Transfer Station, and 58 percent is exported to out-of-County facilities by the private sector. All other types of solid waste are processed primarily, or exclusively, at out-of-County facilities.

3.1.10 Calculation of MSW Recycling Rate: County and MRA Calculations

Table 3.10 displays the County's current and projected MSW recycling rates that include an estimate of backyard composting of yard trim and grasscycling using a national model. The County estimates that approximately 76,522 tons of yard trim were home composted or grasscycled at single family and multi-family residences during Fiscal Year 2007. The County estimates that an additional 8,502 tons were grasscycled on non-residential properties during the same year. In the absence of these backyard composting and grasscycling efforts, a similar amount of yard trim would have entered the County's solid waste management system.

The MRA, Section 9-1705 of the Environment Article, Annotated Code of Maryland, requires each County to document recycling rates. MDE has developed "Tonnage System Reporting Guidelines" for calculating recycling rates for the purpose of

compliance with MRA requirements. County and MDE tonnage measurements of recycling rate follow the same calculations with two exceptions. First, the County rate includes estimates of backyard composting and grasscycling that are based on national models; however, MDE guidelines do not recognize estimates or national models as documented recycling. Second, the County does not include recycled RRF residue, however, MDE guidelines do allow credit for recycled RRF residue.

Table 3.11 displays the County's current and projected MSW recycling rates without backyard composting and grasscycling in conformance with the MRA reporting guidelines developed by MDE.

3.2 WASTE COLLECTION METHODS

Under the direction of the Director of DEP, the Chief of DSWS is responsible for solid waste collection in the County except as specifically designated. Overseeing the collection of solid waste, responding to inquiries and complaints related to collection services and other County solid waste program activities, and enforcing solid waste laws and regulations.

Table 3.10

Municipal Solid Waste Recycling Rate: County Calculation (Tons/Yr)

Includes Back Yard Composting and Grasscycling, and Assumes That All Tons disposed in RRF Were Eligible for Recycling

	2007 Processed at County Gov't Facilities	2007 Processed at Private Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
Residential (Single-Family and Multi-Family)	**472,819**	**131,294**	**604,113**	**629,442**	**657,165**
Recycled	192,889	104,613	297,502	312,380	322,463
Disposed	279,930	26,681	306,611	317,062	334,702
Non-Residential	**295,268**	**323,094**	**618,362**	**658,949**	**700,731**
Recycled	40,512	190,173	230,685	297,018	315,833
Disposed (including C&D burned at County RRF)	254,756	132,921	387,677	361,931	384,898
Municipal Solid Waste (MSW)	**768,087**	**454,388**	**1,222,475**	**1,288,391**	**1,357,896**
		Recycling Rate	**43.2%**	**47.3%**	**47.0%**

Table 3.11

Municipal Solid Waste Recycling Rate: MRA Calculation (Tons/Yr)

Does not Include Back Yard Composting or Grasscycling

	2007 Processed at County Gov't Facilities	2007 Processed at Private Facilities	2007 Estimated Generation In County	2011 Projected Generation In County	2016 Projected Generation In County
Residential (Single-Family and Multi-Family)	**472,624**	**48,986**	**521,610**	**550,724**	**576,198**
Recycled	192,693	22,305	214,998	233,662	241,495
Disposed	279,930	26,681	306,611	317,062	334,702
Non-Residential	**295,258**	**311,532**	**606,791**	**649,889**	**691,096**
Recycled	40,512	178,611	219,123	287,958	306,198
Disposed (including C&D burned at County RRF)	254,746	132,921	387,667	361,931	384,898
Municipal Solid Waste (MSW)	**767,882**	**360,518**	**1,128,400**	**1,200,613**	**1,267,293**
MRA (State) Recycling Rate			**38.5%**	**43.4%**	**43.2%**
State Recycling Credit for Approved County Reduction Programs			**5.0%**	**5.0%**	**5.0%**
MRA (State) Waste Diversion Rate			**43.5%**	**48.4%**	**48.2%**

3.2.1 Collection District

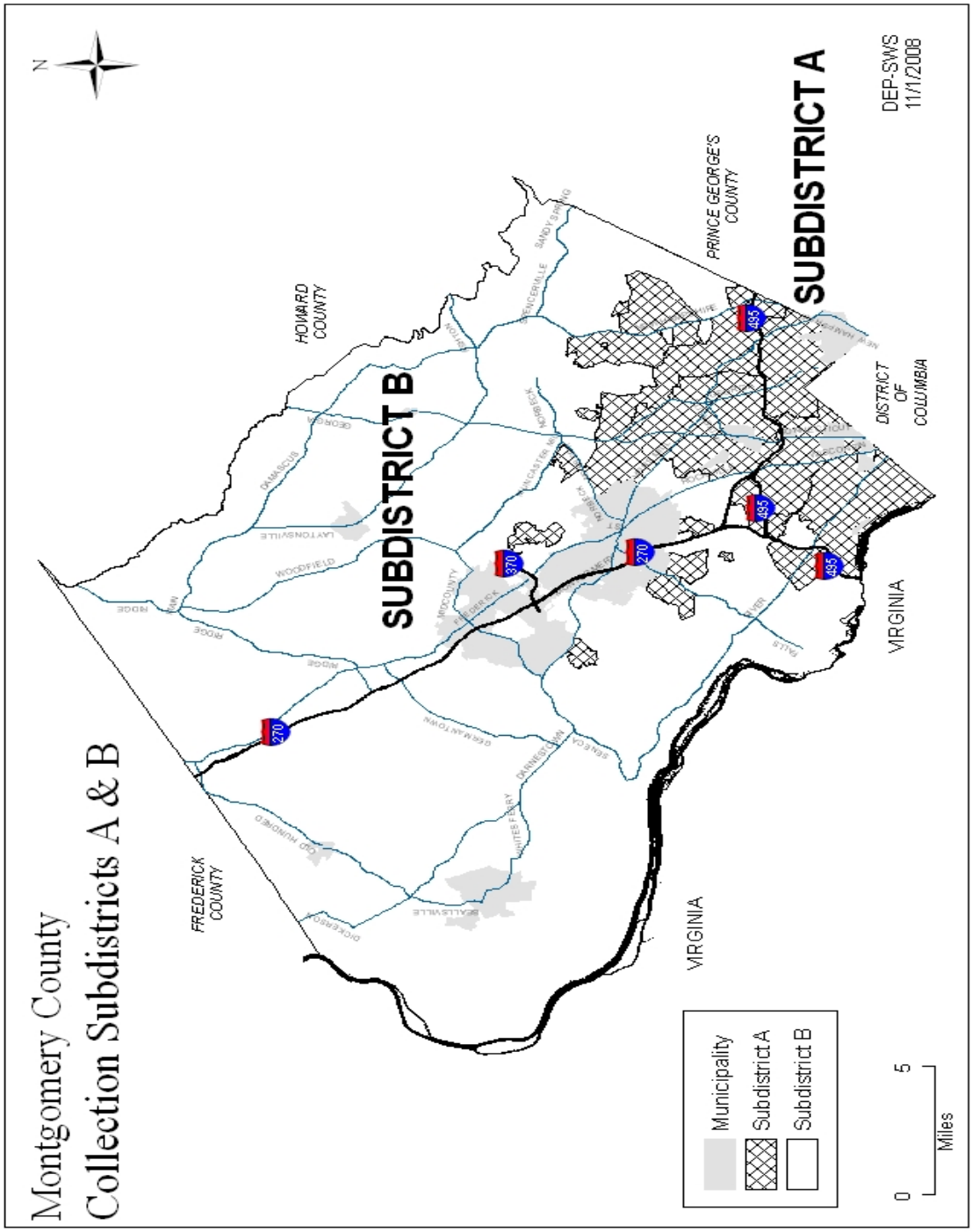
Pursuant to the County Code, Section 48-29, and implementing regulations, the entire County is a collection and disposal district. Pursuant to Sections 48-29, 48-35 and 48-44, the County is authorized to enter into multi-year contracts for the collection of solid wastes within the collection Subdistrict A and to collect charges from the dwelling units that are served. Any city, town, village, special taxing area or community may, by its own initiative, become included in or excluded from the collection district. The County must not collect solid waste from any building with 7 or more dwelling units. Private collectors may supplement collection for buildings with 6 or fewer dwelling units or provide collection services to any building with 7 or more dwelling units.

3.2.2 Collection Service Subdistricts

The County (Collection District) is divided into two solid waste collection subdistricts; Subdistrict A and Subdistrict B, as shown in Figure 3.1. DSWS maintains official maps of the subdistrcts.

Figure 3.1

Map of Collection Subdistricts A and B



3.2.2.1 Collection Subdistrict A

Within Subdistrict A, the County provides refuse and recycling collection services, through contracts with private collectors one or more times per week, at the discretion of the County Executive. In addition, homeowners or occupants of residences with one or two units in Subdistrict A, may at their own expense, contract directly with collection contractors to obtain supplementary solid waste collection services. In 2007, Subdistrict A included approximately 87,650 single family residences[7].

Bulky objects generated by single-family residences and multi-family residences with six or fewer units in Subdistrict A are collected separately by County-contracted collection services. Certain bulky objects, such as white goods and scrap metal are collected for recycling. Non-recyclable bulky objects are collected for disposal. Bulky object collection does not include construction and demolition debris.

3.2.2.2 Collection Subdistrict B

The County provides for recycling collection services in Subdistrict B in the same manner as does in Subdistrict A; however refuse collection services in Subdistrict B are provided by licensed private collectors called Independent Collection Contractors. An Independent Collection Contractor must enter into a collection authorization with the County under terms acceptable to the County which allows it to collect solid waste from single family residences[7]. The Independent Collection Contractor contracts directly with its customers for the collection service. In 2007, Subdistrict B included approximately 121,000 single family residences[7].

3.2.2.3 Collection Subdistrict Transfer

7 Single family residences, in this context, include detached dwellings, duplexes, town homes, and multi-family residences in buildings composed of six or fewer dwelling units.

Under the authority of Subsection 48-29 of the County code, these service subdistricts may be expanded or reduced by method 2 regulation.

3.2.3 County Contracted Recycling Collection

3.2.3.1 Single Family Recycling Collection Service

County Regulation 15-04AM established the entire County as a recycling service area and bans certain recyclable materials from being set out for collection mixed in with refuse set out for disposal. All single family residences in the County, with the exception of those in certain incorporated municipalities, receive County-provided curbside collection of mixed paper, glass containers, aluminum and bi-metal cans, certain plastic containers, grass, brush, leaves, Christmas trees and large household appliances (“white goods”) and select other scrap metals. In accordance with Chapter 48 of the County Code, single family residences in the County Collection district include all single-family detached, townhouses, and residential buildings comprised of six or fewer dwelling units.

The County works with homeowner associations, management groups and other citizens groups to customize, whenever feasible, recycling collection services to meet special needs particular user groups, including townhouse residents, senior citizens and the disabled. This includes special bins or collection points where needed and feasible.

3.2.3.2 Processing, Marketing and Disposition of Recovered Materials

All recyclable materials received through the curbside collection program are transported to the County's MRF (see Section 3.3.1.3).

Residential mixed paper is transferred to trailers and shipped to a private recycling company for grade separations and transport to paper mills and other secondary paper fiber markets.

Commingled glass, aluminum, bi-metal and plastic containers are run through a mechanical and hand separating system. Separated recyclables are shipped to private brokers or dealers in the secondary materials markets.

Grass and leaves are shipped by truck and rail to the County's Yard Trim Composting Facility where they are composted in an open-air windrow operation using mobile turning and shredding equipment (see Section 3.3.1.4). Finished compost is sold commercially in bulk and bagged form as a soil amendment product. Community agreements limit bagging production at the facility to 500,000 bags per year.

Brush and Christmas trees are chipped at the Transfer Station and provided as free "green" mulch to residents at selected sites around the County. The majority of mulch is sold to commercial vendors as market conditions allow.

White goods and other scrap metals are sold to private scrap metal recyclers. Motor oil, antifreeze, vegetable oil, auto batteries, computers, televisions, usable building materials and textiles are recycled through various outlets.

3.2.4 County Leaf Collection Service

MCDOT vacuums leaves from public rights-of-way within the Leaf Collection District (see Figure 3.2) from November through January and at such other times as the Department may determine. Leaves collected from public rights-of-way are composted at the Yard Trim Composting Facility. The County has implemented a regulation (Executive Regulation 6-99AM[8] in Appendix F) allowing communities to opt in/out of the leaf collection district.

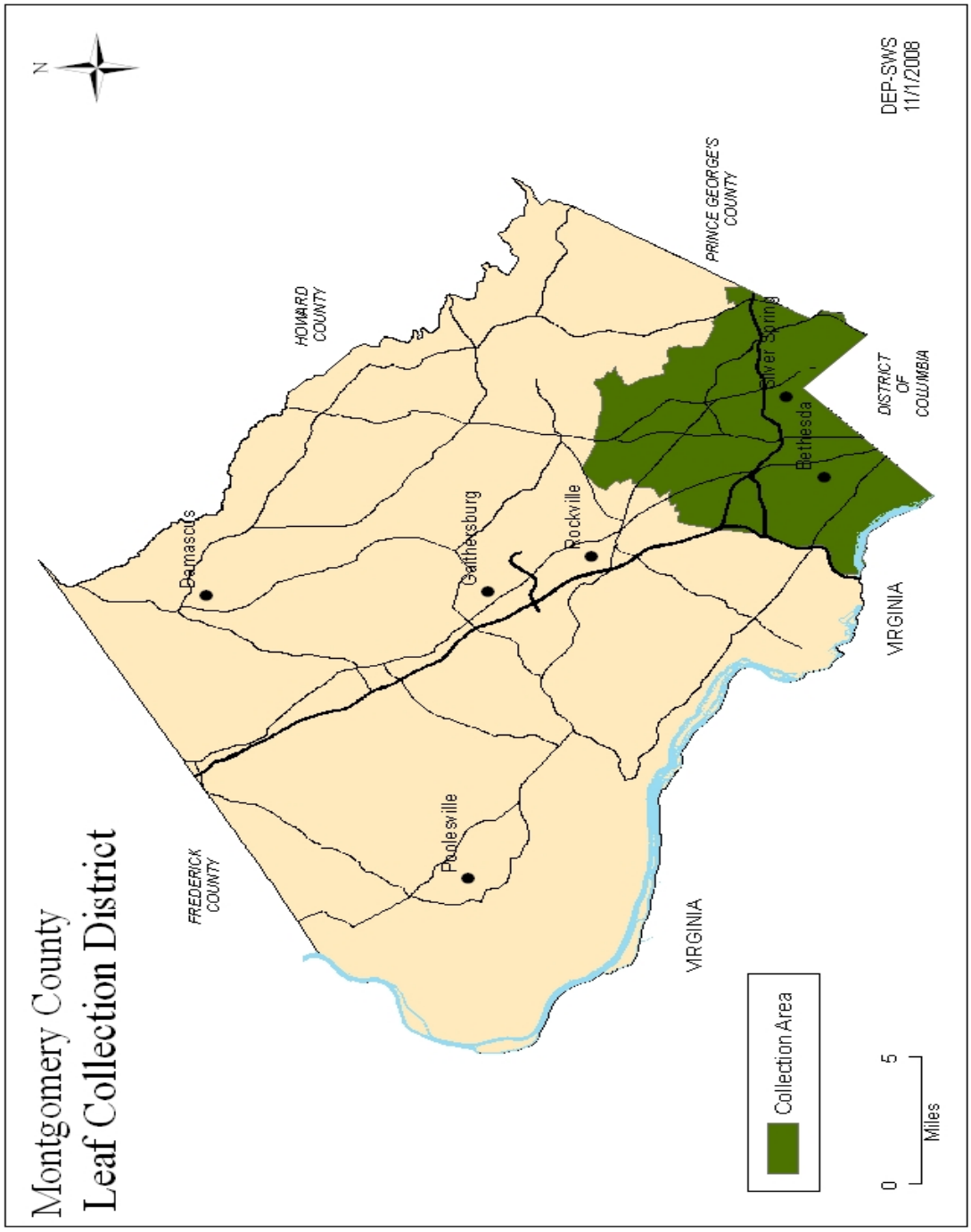
3.2.5 Waste Collection in Incorporated Municipalities

There are 19 incorporated municipalities within Montgomery County with responsibility for the collection of refuse and recyclables from within their jurisdictions. See Table 2.2 for a list of municipalities. Municipalities have the option of delivering refuse to the County Transfer Station and recyclables to the County MRF.

8 Citation of any County Executive Regulation in this Plan is for informational purpose only and does not constitute incorporation into the Plan, such that the regulation cannot be amended by County process without amending this Plan.

Figure 3.2

Map of Leaf Collection District



3.2.6 Independent Waste Collection

The collection and disposal of wastes generated on multi-family residential properties with seven or more units and non-residential (commercial, industrial and institutional) properties is the responsibility of the property owner. Wastes from these sources are either collected by a private collection company or self hauled to a waste acceptance facility. Independent commercial collectors must have a Montgomery County solid waste hauling license.

Private commercial collectors also provide recycling collection service to multi-family residential and nonresidential properties. These collectors deliver recyclable material to private facilities located inside and outside the County.

Private commercial collectors also provide refuse collection service to single family residences in Subdistrict B, as described above and refuse and recycling collection to single family residences in some incorporated municipalities.

3.2.6.1 Collection Frequency

Regularly scheduled collection service is mandatory for all sources, except for commercially generated construction and demolition debris.

Refuse removal frequency is to be in accordance with the quantity and type of wastes generated and the on-site storage capacity of the generator. Refuse generators either provide collection services or contract with licensed haulers for collection.

Highly putrescible wastes, such as seafood waste, are removed from commercial premises daily, unless the waste is discharged directly into a sanitary sewer system, or

is stored in refrigerated storage. As stated in Section 48-24(e)(2) of the Montgomery County Code, the existence of objectionable odors at the nearest adjoining premises is evidence of insufficient removal frequency.

3.2.6.2 Collection of hazardous and special medical wastes

Hazardous and special medical wastes are not put out for regular refuse collection. Hazardous wastes are transported by permitted hazardous waste haulers to permitted TSD facilities. Special medical wastes are to be destroyed by proper incineration on the premises or transported by a permitted special medical waste hauler to a permitted special medical waste disposal facility.

3.2.7 Waste Collection and Transportation Conditions

3.2.7.1 Licensure

No person may engage in the business of collecting or transporting refuse within the County without first obtaining a Collector's license from DEP.

Any company or person engaged in or to become engaged in the business of collecting solid waste as a licensed collector or hauler under the terms of the Montgomery County Code may apply to be an Independent Collection Contractor authorized to collect solid waste on behalf of the County from residences included in the Solid Waste Collection and Disposal District. Only licensed collectors may be Independent Collection Contractors.

Licensees must operate fully in accordance with the Montgomery County Code. In accordance with Executive Regulation 58-92AM, all County-Licensed collectors and haulers must submit a semi-annual tonnage report.

3.2.7.2 Solid Waste Transport

The County requires that vehicles used in the transport of solid wastes shall be such that blowing refuse, litter, and spills of putrescible and noxious materials will not occur. Generally, such vehicles will have an enclosed, water-tight steel body of the packer type that is readily cleanable and sanitary. An exception is made in the case of vehicles used only for hauling building materials, trees and parts of trees, rubble, refuse packaged in cardboard boxes or plastic bags, abandoned vehicles, machinery, appliances and other non-combustible materials. It further requires that the vehicles shall be operated in a safe and sanitary manner and upon such a schedule that the impact on traffic is kept to a minimum.

Hauling routes to be used by public vehicles and vehicles under contract to the County, and their schedules of operation, are designated by the County Executive.

3.2.7.3 Delivery of Solid Waste from Collection and Disposal District

Solid waste that is collected on behalf of the County may be delivered to the Transfer Station.

Provided that they are not in breach of the Independent Contractor Authorization, Independent Collection Contractors are not required to pay a tip fee at the Transfer Station for residential solid waste collected on behalf of the County from single family

residences[9] in the district. Independent Collection Contractors are prohibited from billing County residences any tip fee for refuse collected at those homes.

3.2.8 Litter

3.2.8.1 Maryland Litter Control Law

The Maryland Litter Control Law[10] makes it unlawful for any person or persons to dump, deposit, throw or leave, or to cause or permit the dumping, depositing, placing, throwing or leaving of litter on any public or private property in this State, or on any waters in this State, unless it is deposited at a properly permitted waste disposal facility, placed in a proper receptacle, or is lawfully deposited on private property in a manner consistent with public welfare.

All law enforcement agencies, officers, and officials of the State or any political subdivision thereof, or any enforcement agency, officer or any official of any commission of this State or any political subdivision thereof, are authorized, empowered and directed to enforce compliance with the Litter Control Law.

3.2.8.2 County Litter Control Authority

Whenever any readily movable property of any kind, such as, but not limited to, furniture, appliances, personal effects, etc., is abandoned or left in violation of any law, ordinance or order on public or private premises, it may be removed in accordance with Chapter 32-1 of the Montgomery County Code.

9 The County charges the tipping fees applicable to that refuse by means of a pre-paid disposal fee charged to the owners of single family properties generating that waste.

3.2.9 Septage Collection

Septage is collected, primarily in those parts of Montgomery County which are not served by sewers, by private contractors operating under a permit from WSSC.

3.3 WASTE ACCEPTANCE FACILITIES

As displayed in Table 3.12, there are several waste management facilities in Montgomery County. In Maryland, landfills, transfer stations, resource recovery facilities and special medical waste incinerators require a solid waste and/or air emissions permits from the MDE. Recycling and composting facilities generally do not require a MDE Refuse Disposal Permit or Air Quality Permit. Solid waste facilities may be subject to other permit requirements (such as storm water runoff control). As discussed in Chapters 2 and 5, private solid waste facilities are subject to County zoning requirements.

3.3.1 County Solid Waste Facilities

The County's existing solid waste management system is served by several principal facilities, each described below. The locations of each in-county facility that comprises the solid waste management system appear in Figure 3.3.

3.3.1.1 Shady Grove Processing Facility and Transfer Station

Refuse collected by permitted solid waste haulers and collectors is processed at the Shady Grove Processing Facility and Transfer Station. The Transfer Station is located on a 45-acre site adjacent to the MRF site in Derwood. The Transfer Station has been in operation since the spring of 1982 and has a waste operating permit limit of

10 Section 10-110, the Criminal Article of the Annotated Code of Maryland (2002).

821,500 tons per year. In 1995, modifications were completed at the Transfer Station as part of the development of the Transportation System to facilitate rail haul of processible waste to the RRF. Three solid waste compactors were installed to compress up to 30-ton loads of solid waste into logs that are mechanically discharged into 40-foot containers. Containers of compacted waste are driven to the rail yard for shipment to the RRF. Non-processible waste received at the Transfer Station that can not be recycled is transported by tractor trailer to a private landfill in Brunswick County, Virginia. Processible waste can also be bypassed directly to the County's contracted landfill if necessary. To safeguard the Transfer Station from unacceptable radioactive waste, radiation detectors are located at the entrance to the tipping floor, the inbound truck scale and the contractor's dedicated scale. Inspectors also routinely check waste loads for other types of unacceptable materials.

The Transfer Station provides a public unloading area for unloading refuse and recyclable materials delivered in passenger vehicles. This area receives all of the materials accepted in the County's residential curbside collection program. It also promotes reuse and waste toxicity reduction by accepting materials including computers, automotive fluids and batteries, household hazardous wastes, rechargeable batteries, building materials, textiles, and tires.

The Transfer Station also includes areas for yard trim (grass, leaves, brush, and Christmas trees) collected through the curbside recycling program or delivered to the site by residents and landscapers. Most of the leaves and grass are first ground and then transferred to the County Yard Trim Composting Facility. Brush and Christmas trees are ground on site into mulch and transported to County sites where it is available for no charge to County residents and sold to commercial mulch vendors.

Table 3.12

Solid Waste Facilities Located in Montgomery County

Facility Type/Name	Location (Maryland Grid Coordinates)	Owner	Permit Status	Operating Status	Remaining Life	Types of Waste	2007 Tons
Recycling Facilities							
Georgetown Paper Stock	535-B Southlawn Ln Rockville (1272031, 519641)	Georgetown Paper Stock, Inc.	not applicable	active	indefinite	paper products	67,000 (FY 07)
Montgomery County MRF (Materials Recovery Facility)	16101 Frederick Rd Derwood (1264254, 529421)	Montgomery County	not applicable	active	10-15 years	paper products; containers (Al, Fe, glass, plastic)	98,640 (FY 07)
Montgomery Scrap	15000 Southlawn Ln Rockville (1273591, 523254)	Montgomery Scrap Corp.	not applicable	active	indefinite	scrap metal	93,954 (FY 07)
Office Paper Systems	7650 Airpark Rd Gaithersburg (1267736, 547772)	Office Paper Systems, Inc.	not applicable	active	indefinite	paper products	36,393 (FY 07)
Southeast Recycling	9001 Brookville Rd Silver Spring (1292142, 478582)	Southeast Recycling, Inc.	not applicable	inactive	Indefinite	paper products; Al containers	0 (FY 07)
Composting Facilities							
Montgomery County Yard Trim Compost Facility	21210 Martinsburg Rd Dickerson (1185038, 558347)	Montgomery County	permitted	active	indefinite	leaves and grass	77,280 (FY 07)
ACME Biomass Reduction	21601 New Hampshire Av Brookville	ACME Biomass Reduction, Inc.	permitted	active	indefinite	wood	
Twin Ponds Farm	15315 Mt Nebo Rd Poolesville	Twin Ponds Farm, LLC.	permitted	active	indefinite	wood	3,000 (FY 07)

Table 3.12 (con't)
Solid Waste Acceptance Facilities, Montgomery County, Maryland

Facility Type/Name	Location (Maryland Grid Coordinates)	Owner	Permit Status	Operating Status	Remaining Life	Types of Waste	FY 07 Tons
Construction Debris Reclamation Facilities C&D Recovery LLC	24220 Frederick Rd Clarksburg (1226619, 578608)	Environmental Alternatives Reclamation, Inc.	permitted	active	- -	construction and demolition debris	69,530 (FY 07)
Transfer Stations, Public Montgomery County Solid Waste Transfer Station	16101 Frederick Rd Derwood (1263505, 529641)	Montgomery County	permitted	active	indefinite	MSW, Nonprocessibles Yard Trim Other recyclables	593,185[11] 96,644[12] 76,742 19,926
Sanitary Landfills Gude Sanitary Landfill (closed)	600 E. Gude Dr Rockville (1271271, 524364)	Montgomery County	permit expired	inactive	closed facility	- -	- -
Oaks Sanitary Landfill (closed)	6001 Olney-Laytonsville Rd near Laytonsville (1278703, 556080)	Montgomery County	permit expired	inactive	closed facility	- -	- -
Site 2 Landfill Site (in reservation)	near Martinsburg Rd & Wasche Rd Dickerson (1183472, 553143)	Montgomery County	permitted	820-acre land reserved for possible future need	- -	- -	- -
Rubblefills Bonifant Road Rubblefill (closed)	1201 Bonifant Rd Silver Spring (1303174, 520238)	Maryland-National Capital Park and Planning Comm.	permit expired	inactive	closed facility	- -	- -

11 Amount loaded on rail to the RRF

12 Nonburnable materials going to recycling or a landfill

Table 3.12 (con't)
Solid Waste Acceptance Facilities Montgomery County, Maryland

Facility Type/Name	Location (Maryland Grid Coordinates)	Owner	Permit Status	Operating Status	Remaining Life	Types of Waste	2007 tons
Resource Recovery Facilities Montgomery County Resource Recovery Facility	21204 Martinsburg Rd Dickerson (1183469, 559168)	Montgomery County (land); Northeast Md. Waste Disposal Authority (RRF)	permitted	active	Indefinite	municipal solid waste	593,185 (FY 07)
Special Medical Waste Incinerators Bioqual, Inc.	2501 Research Blvd Rockville (1258799, 524014)	Bioqual, Inc.	permit expired	inactive	- -	- -	- -
Montgomery General Hospital	18101 Pr. Phillip Dr Olney (1296766, 541693)	Montgomery General Hospital	permit expired	inactive	- -	- -	- -
PerImmune, Inc.	1330A Piccard Dr Rockville (1261591, 523282)	PerImmune, Inc.	permit expired	inactive	- -	- -	- -
Shady Grove Adventist Hospital	9901 Med. Center Dr Rockville (1255982, 521430)	Shady Grove Adventist Hosp.	permit expired	inactive	- -	- -	- -
Pet Crematoria Heavenly Days Animal Crematory	605 S. Stonestreet Rockville (1271597, 515706)	Heavenly Days Animal Crematory	permitted	active	indefinite	dead animals	36 (CY 07)

3.3.1.2 Resource Recovery Facility

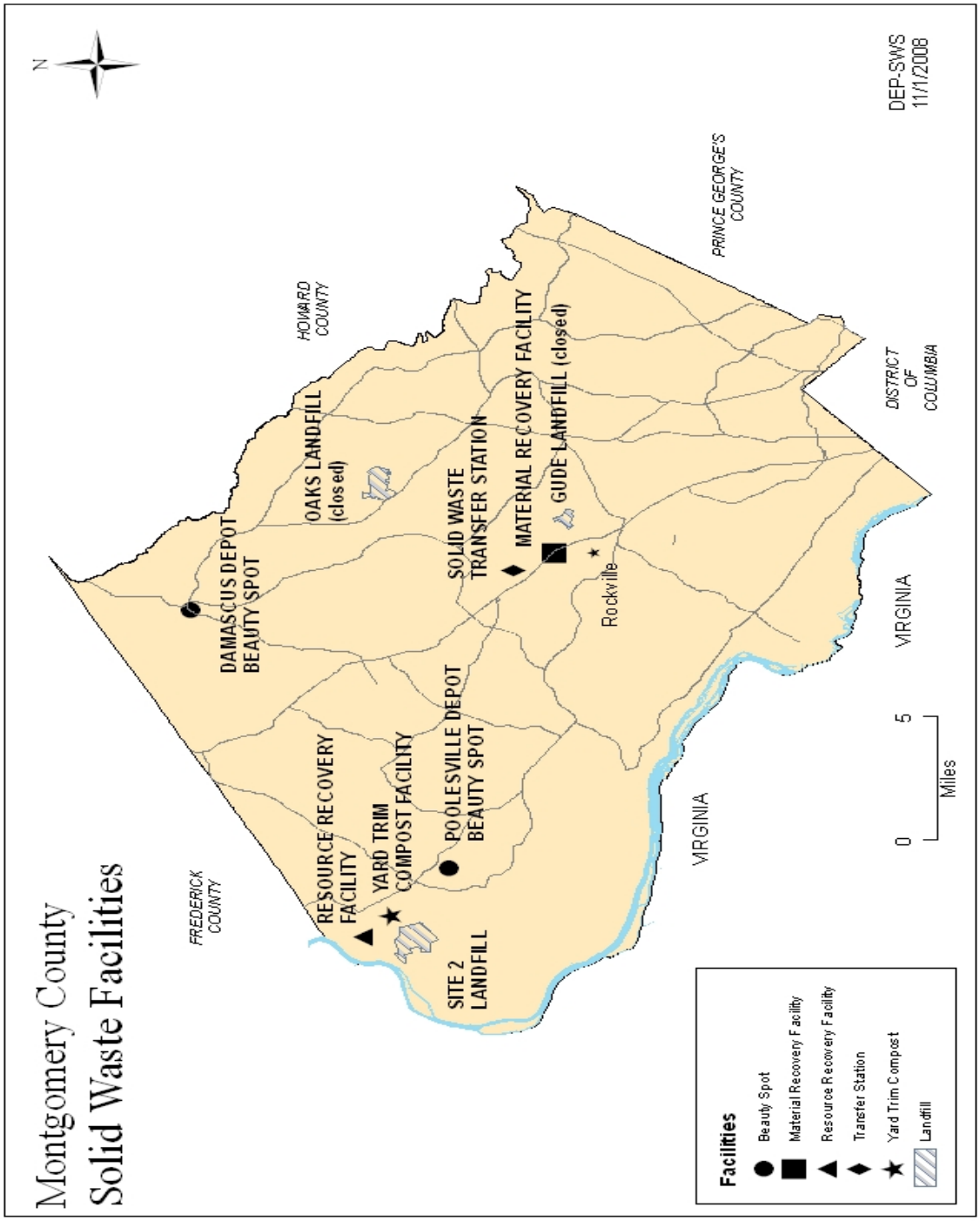
In August 1995, the County began operation of a mass-burn RRF in Dickerson, Maryland. With the exception of occasional bypass as necessary, all non-recycled processible waste delivered to the County's Shady Grove Processing Facility and Transfer Station is consolidated and transported by rail to the RRF for waste-to-energy incineration. In addition to energy recovery, ferrous metal is recovered from RRF residue and sold to scrap metal dealers. To safeguard the RRF from radioactive waste, radiation detectors are located at the entrance to the tipping floor and in the ash handling system area.

The RRF consists of three 600 tons per day mass-burning, refuse-fired boiler units producing high pressure, high temperature steam for electrical power generation. The RRF is located on 34 acres of land adjacent to the electric generation station near Dickerson owned by a subsidiary company of Mirant Americas Energy Marketing, LP (MAEM). An Electricity Sales Agreement provides that NMWDA markets all electricity, net of in-plant usage by the RRF.

NMWDA financed the cost of designing and constructing the RRF and related transportation improvements necessary for the project. NMWDA owns the facility, leases the facility property from the County and contracted for the facility design, construction, and operation through a Service Agreement with Covanta Montgomery, Inc., f/k/a Ogden Martin Systems of Montgomery, Inc., a subsidiary of Covanta Energy Corporation, f/k/a Ogden Corporation. The County has entered into a Waste Disposal Agreement with NMWDA for the disposal of non-recycled waste.

Figure 3.3

Facilities of the County Solid Waste Management System



3.3.1.3 Materials Recovery Facility

The MRF, also known as the Recycling Center, is located on a 10-acre parcel of land in Derwood, Maryland, contiguous to the Transfer Station. Recyclable materials collected at the curb from single family residences including mixed paper and commingled containers are accepted at the MRF. The MRF also receives recyclables from multi-family residences and some commercial sources. MES operates the MRF under the terms of an intergovernmental agreement with the County.

Residential mixed paper is transferred at the MRF onto OPS containers and shipped to the OPS mixed paper recycling facility. The MRF has a transfer capacity of 346 tons of mixed paper per 8-hour shift, and is operated one shift per operating day.

Commingled containers, including glass and plastic bottles, aluminum, ferrous and bi-metal cans and aluminum foil, are sorted and baled at the MRF through a combination of mechanical and hand separation. Sorted and baled recyclables are sold to various markets for remanufacture. The MRF has a sorting capability of 100 tons of mixed containers per 8-hour shift, and is operated generally on the basis of one shift per operating day.

3.3.1.4 Yard Trim Composting Facility

In 1983, the former WSSC sewage sludge composting facility on the “Matthews Farm” near Dickerson, Maryland was converted into a County managed leaf composting facility. In 1992, the County began composting both leaves and grass at the facility. Leaves and grass are composted at the facility in an open-air windrow operation using mobile turning and shredding equipment. The facility produces compost that is dried and screened for commercial bulk and bagged markets. Facility operations occur on a 48-acre bituminous pavement pad. The entire facility site covers 118 acres.

The MES operates the Yard Trim Composting Facility under terms of an intergovernmental agreement with the County. Agreements between the County and the Sugarloaf Citizens Association require that the facility accept no greater than 77,000 tons of yard trim per year and that the bagging operation not exceed 500,000 bags per year.

3.3.1.5 Beauty Spots: Satellite Drop-off Centers

DEP operates two satellite drop-offs facilities (also referred to as convenience centers or “Beauty Spots”) for the purpose of citizen disposal of non-putrescible residential solid waste. These convenience centers are located at MCDOT Division of Highway Services (DHS) transportation depots: one in Poolesville at 19200 Jerusalem Road and one in Damascus at 26149 Ridge Road. Operating hours for citizens' waste disposal are limited to weekends, from 9:00 a.m. to 5:00 p.m. on Saturdays, and from 9:00 a.m. to 1:00 p.m. on Sundays.

The satellite convenience centers were started by the Division of Highway Services (DHS) in the mid-1980s in an effort to eliminate roadside trash dumping. Soon after DHS started the convenience centers, DSWS took over the management of the contract to haul waste from the convenience centers and DHS continued the daily operations at the sites. Typical materials received at the centers are large, bulky items such as home remodeling debris, furniture, and bulky trash.

During operating hours, two DHS employees are present to direct incoming traffic, operate the machinery used to move the waste, and monitor the site. In addition to providing service during the weekend operating hours, the DHS employees work at the site during the week to load waste quantities into stand-by roll-off containers.

The County contracts to provide empty waste containers and transport loaded containers. Generally, the contracted hauler provides empty roll-off containers at the depots prior to 3:00 p.m. on Friday of each week.

3.3.1.6 Out-of-County Landfill

The County entered into a contractual agreement to transport RRF ash, non-processible waste and bypass waste for disposal at a private landfill in Brunswick County, Virginia, at least until the Year 2012. The landfill is owned by Brunswick Waste Management Facility (BWMF), Inc., a wholly owned subsidiary of Allied Waste Industries of North America, Inc. The contract prohibits the storage, handling or disposal of any waste delivered by the County at any site or facility other than those explicitly approved by the County. The County no longer manages Regulated Asbestos Containing Material (RACM) and does not use the landfill for its disposal.

The private landfill in Brunswick County, Virginia, is a permitted Subtitle D facility that opened in March 1997. The County's contract provides for disposal of County waste in a dedicated landfill cell reserved for County waste exclusively. All permits needed for this site are current and valid. The remaining capacity for the dedicated cell is at least 17 years at the current disposal rate from the County. The contract may be extended for five additional years under the existing contract terms, through 2017, at the

County's option. There are no requirements for negotiations or additional obligations to extend the contract.

3.3.1.7 Land Reserved for Potential Future In-County Landfill

The County has acquired approximately 820 acres along Wasche Road near Dickerson, Maryland to be held in reserve for use in the event economic conditions or changes in law render out-of-County waste disposal infeasible. The location reserved for possible future landfill use is known as "Site 2." While the out-of-County landfill option remains viable, the County intends to maintain the current agricultural use of the Site 2 location. With the exception of activities to preserve select historic structures on the former "Chiswell Farm," the County will not make any improvements to the site as long as the out-of-County landfill option remains viable.

3.3.2 Waste Transportation System

The waste transportation system primarily consists of moving wastes from the Transfer Station to the RRF, from the RRF to the out-of-County landfill, and from the Transfer Station to the out-of-County landfill.

3.3.2.1 Transfer Station to RRF: Processible Waste and Yard Trim

Processible waste received at the Transfer Station is hauled 18 miles by rail to the RRF. Processible waste is rail hauled in forty-foot long intermodal containers. Containers are stacked two high on special purpose rail cars and travel via an existing railroad right-of-way between a railroad yard adjacent to the existing Transfer Station and a 1.2 mile access track and rail yard adjacent to the RRF. Trains are pulled by CSX Transportation locomotives using CSX tracks.

In addition, a portion of the yard trim sent to the Yard Trim Composting Facility is transported from the Transfer Station via rail.

3.3.2.2 RRF to Out-of-County Landfill: RRF Ash

Brunswick Waste Management transports ash from the RRF in 20 ft. intermodel containers via rail over existing commercial rail lines to a depot in Petersburg, Virginia. From the rail depot, the containers are transferred to truck trailers for roadway transport to a privately owned landfill in Brunswick County, Virginia.

3.3.2.3 Transfer Station to Out-of-County Landfill: Other Wastes

Brunswick Waste Management transports non-processible waste and bypass waste received at the Transfer Station that can not be recycled via over-the-road trailers to its privately owned landfill in Brunswick County, Virginia. Material that can be recycled such as asphalt and concrete are transported via truck to rubble recycling facilities.

Chapter 4: Assessment of Solid Waste Management Needs

The County balances a variety of competing demands to address its solid waste management needs. This chapter identifies County solid waste management needs and outlines a plan direction to address those needs. In considering how best to address County solid waste management needs, this chapter also provides an assessment of current conditions and constraints as well as existing programs and facilities designed to accommodate the solid waste generated within the County.

Acronyms and solid waste terms used in this chapter and throughout this document are defined in Appendix A.

The County manages solid wastes in accordance with the following objectives:

- The County implements solid waste management practices that are both environmentally and fiscally sound and that provide reliable long-term solutions to County solid waste management needs;

- The County funds the solid waste management system through a mechanism that provides a secure, sufficient, and equitable source of funds to enable the County to operate an integrated waste management system of waste reduction, recycling, and disposal; and

- The County solicits and includes concerns of the public at an early stage and throughout the solid waste management decision-making process.

This chapter is organized into the following subsections:

4.1 MANAGEMENT NEEDS: MUNICIPAL SOLID WASTE

As presented in Chapter 3, approximately 1,222,475 tons of MSW were generated in the County during Fiscal Year 2007 and 1,357,896 tons are projected to be generated in FY 2016. To address its waste management needs, the County employs the following techniques: (1) waste reduction; (2) recycling and composting; (3) resource recovery; and (4) landfilling. All of these components are interrelated and integral to the County's solid waste management system. The success of one element within the system is often dependent on the successful implementation of others. An understanding of this interdependence is critical to the fiscal and operational health of the system.

4.1.1 Waste Reduction

Waste reduction is the preferred method in the County's solid waste management hierarchy. Reductions in waste generation lessen the burden of solid waste management by decreasing the amount of material entering the system. The County's waste reduction plan includes the following elements.

4.1.1.1 Per Capita/Per Employee Waste Generation

Current Conditions and Constraints: The Department projects future waste generation based on M-NCPPC projections of future population and employment growth and on the Department's best professional assessment of per capita and per employee waste generation trends. Notwithstanding assumptions in per capita and per employee waste generation rates, the County must aggressively implement waste reduction and recycling programs.

Needs Assessment and Plan Direction: The County must regularly and systematically monitor waste per capita and per employee generation trends to refine waste generation projections. On-going monitoring and periodic revision of actual waste generation rates will assist the County in evaluating the need for adjustments to the solid waste programs in accordance with the zero growth policy.

4.1.1.2 Waste Reduction Information and Programs

Current Conditions and Constraints: The County promotes waste reduction through consumer education and technical assistance using various media, including development, production and distribution of educational and promotional materials, public and private schools outreach, training and support of recycling and composting volunteers, workshops, demonstrations and seminars. The central elements of this effort are the SORRT Program (Smart Organizations Reduce and Recycle Tons), and the TRRAC Program (Think Reduce and Recycle at Apartments and Condominiums) (see Section 4.4.1 of this Plan). These programs provide waste reduction, recycling, and buying recycled guidance to the commercial and multi-family sectors.

The County provides drop-off locations at the Shady Grove Processing Facility and Transfer Station for yard waste, reusable construction materials, computers, textiles and other materials.

Needs Assessment and Plan Direction: The County will continue to promote waste reduction through resident and consumer education and business technical assistance. Both national and local data indicate trends toward increased waste generation. Should multi-year trends indicate changes in overall waste generation, the County will adjust its baseline per capita and per employee generation assumptions.

4.1.1.3 Waste Reduction Opportunities in County Government

Current Conditions and Constraints: The County adopted an Environmental Policy on July 29, 2003, promoting recycling, waste minimization, energy conservation and environmentally responsible business practices for all of its own departments and agencies. Waste reduction and reuse efforts in its operations include installing two-sided copying machines in many offices and promoting the use of electronic mail in place of paper memoranda. In addition to two-sided copying, and use of e-mail in education, outreach and training efforts provided throughout County, M-NCPPC, MCPS, WSSC and other facilities, DEP advocates and encourages a "Just in Time" ordering system, a "First-in First-out" use policy, establishing inventory control procedures, date-stamping incoming materials, routing of printed materials, posting of employee notices, and use of durable, reusable items such as cloths for cleaning, ceramic mugs, durable cups, etc.

Needs Assessment and Plan Direction: Opportunities remain for the County to reduce its waste generation, particularly office paper from offices, schools, service centers and other public facilities. The County will attempt to serve as a model for the community by implementing its Environmental Policy to perform its mission while producing less resulting waste.

4.1.1.4 Regional Waste Reduction Efforts

Current Conditions and Constraints: The County participates in regional efforts to promote waste reduction, including those involving the Greater Washington

Metropolitan Council of Governments, the MDE, the Maryland Recyclers' Coalition and other regional entities. Coordination of efforts also occurs within the MDE County Solid Waste and Recycling Managers groups. The County monitors and supports appropriate State and national legislative initiatives on waste reduction.

Needs Assessment and Plan Direction: Large scale waste reduction involves modifications in consumer and commercial behavior. Effecting this type of change often involves adjusting economic and societal behavior that extends beyond the boundaries of the County. A regional approach toward waste reduction will permit the leveraging of resources and increased effectiveness.

4.1.1.5 Waste Reduction Incentives

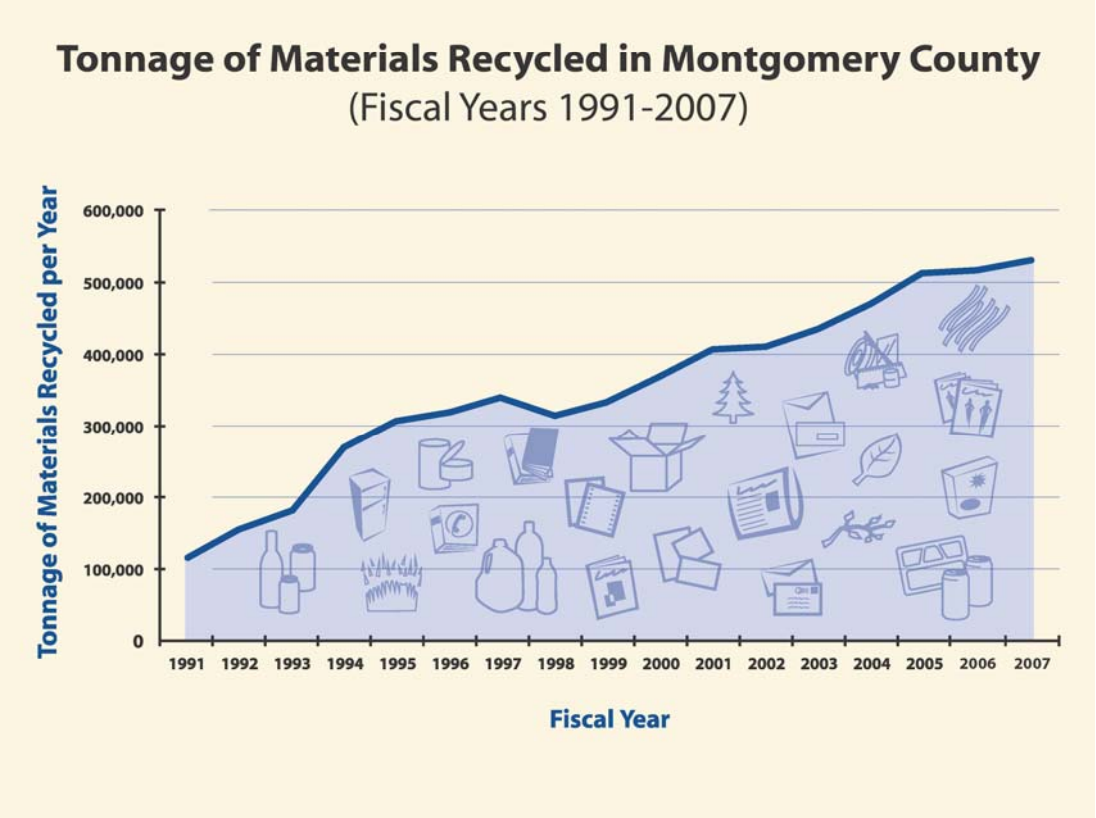
Current Conditions and Constraints: The County provides education and technical assistance to all types of waste generators emphasizing the economic benefits of waste reduction and increased recycling for lowering waste disposal costs.

Needs Assessment and Plan Direction: Refuse Tipping Fee avoidance provides an economic incentive for waste generators who pay a contractor for waste removal and disposal. In addition, the system benefit charge financing method described in Chapter 5 provides financial incentives for the non-residential sector to reduce waste generation whereby property owners who document a lower than average waste generation rate for their land use type can be assessed a reduced base system benefit charge. Independent of the benefits of simply shifting waste from disposal to recycling, the County's COOP (See Section 4.1.2.3) should continue to emphasize these fiscal incentives for waste reduction. .

4.1.2 Recycling Achievement, Opportunity and Direction

Figure 4-1, below shows the historical achievement in the total tonnage of MSW recycled in Montgomery County since the inception of its recycling programs in 1992.

Figure 4-1



During Fiscal Year 2007, over 528,000 tons of municipal solid waste generated within Montgomery County, were recycled.

As is also suggested by the image above, MSW is comprised of many different types of materials. In fact, it is comprised of virtually every "thing" in our everyday culture. Markets determine if a particular type of material is recyclable. Thus, not all types of waste are recyclable, and the opportunities for increased recycling lay in the quantities of those materials that are recyclable, but are still being disposed.

Table 4-1 enables one to take stock of those opportunities, material type by material type, and both in terms of tonnage potential, and in terms of individual capture rates. The table was constructed by applying the results of the County's most recent waste composition analysis to the known disposal tonnages. It is important to note that while those disposal tonnages were based on certified truck scales (see Appendix B), the *composition* of the disposed MSW was determined on the basis of statistical sampling of disposed MSW. Thus, while a sound methodology, inferences based on Table 4-1 must be regarded as estimates. Notwithstanding that limitation, meaningful suggestions arise. Some of these inferences are in the form of "capture rates". A capture rate can be regarded as a recycling rate individualized with respect to a specific type of material, or grouping of material types. Table 4-1 reveals the locus of increased recycling tonnage opportunities and at the same time appears to validate the feasibility of the County's overall 50 percent recycling goal.

For example, Table 4-1 indicates that of all the waste glass bottles and jars generated in the single-family sector, 70 percent, or 14,412 tons, were captured for recycling, leaving 30 percent, or 6,176 tons of glass disposed. That disposed tonnage represents the estimated *opportunity* for additional recycling offered by glass bottles and jars in the single-family sector.

Taking another example, the table indicates that only 40.3 percent of the non-residential paper was captured during FY07, leaving 59.7 percent, or 136,186 tons of paper, disposed from that sector.

By comparison, it can be seen that a shift of 83,053 tons of any material from disposal to recycling, for the FY07 period, would have resulted in the County having achieved its overall 50 percent recycling goal that year.

Table 4.1

Waste Recycling by Material Type: Achievement and Opportunity

Basis for composition of disposed waste is the waste composition sampling at Conty Transfer Station.		FY07 Actuals									The Opportunity; Recyclable But Disposed			
		Single-Family			Multi-Family			Non-Residential			Disposed By Sector (tons)			Total Disposed (Tons)
		Generated (tons)	Captured (tons)	Capture Rate %	Generated (tons)	Captured (tons)	Capture Rate %	Generated (tons)	Captured (tons)	Capture Rate %	Single-Family	Multi-Family	Non-Residential	
Banned ER15-04AM	Subtotal, Banned Components	338,844	265,331	**78.3%**	44,182	11,189	**25.3%**	368,550	198,824	**53.9%**	73,513	32,992	169,726	276,231
	Paper	125,484	73,029	58.2%	25,597	1,917	7.5%	228,040	91,853	40.3%	52,455	23,681	136,186	212,322
	Glass	20,589	14,412	70.0%	3,627	735	20.3%	7,477	2,011	26.9%	6,176	2,892	5,466	14,534
	Other Ferrous	18,362	13,839	75.4%	3,971	1,943	48.9%	73,217	58,376	79.7%	4,523	2,028	14,841	21,393
	Yardwaste	160,663	157,614	98.1%	6,909	6,075	87.9%	46,351	41,690	89.9%	3,049	834	4,661	8,544
	Narrow-Neck Plastics	7,917	4,019	50.8%	2,145	206	9.6%	5,319	554	10.4%	3,898	1,940	4,765	10,603
	Ferrous/Bimetal Containers	3,753	1,720	45.8%	1,242	277	22.3%	2,121	231	10.9%	2,033	966	1,890	4,889
	Aluminum Beverage Cans	1,693	697	41.2%	572	36	6.2%	1,213	144	11.8%	996	536	1,069	2,602
	Other Non-Ferrous Metal	384	0	0.1%	118	2	1.7%	4,812	3,965	82.4%	383	116	847	1,346
Encouraged	Textiles & Leather (no Rugs)	5,913	111	1.9%	1,819	4	0.2%	4,998	262	5.2%	5,802	1,815	4,737	12,353
	Wood Waste (including pallets)	12,216	10,874	89.0%	786	325	41.3%	43,164	22,284	51.6%	1,342	462	20,880	22,684
	Whole Tires (as Rubber)	1,836	1,836	100.0%	515	459	89.1%	4,708	3,699	78.6%	-	56	1,009	1,065
	Lubricants (e.g. motor oil)	4,786	4,708	98.4%	1,275	1,274	99.9%	3,117	3,069	98.5%	78	1	48	127
	Electronics	4,186	765	18.3%	1,373	27	1.9%	2,820	613	21.7%	3,422	1,346	2,207	6,974
	Batteries	205	199	97.3%	49	7	14.2%	834	473	56.7%	6	42	361	408
	Tire Steel	471	241	51.3%	125	60	48.4%	890	302	33.9%	230	64	589	882
Potential	Food Waste	41,707	18	0.0%	13,196	1	0.0%	59,226	659	1.1%	41,689	13,195	58,567	113,452
	Film Plastic	16,930	-	0.0%	5,885	-	0.0%	24,500	489	2.0%	16,930	5,885	24,011	46,826
	Other Plastic	6,122	46	0.8%	2,543	2	0.1%	11,243	15	0.1%	6,075	2,542	11,229	19,846
	Carpets / Rugs	4,475	-	0.0%	640	-	0.0%	12,060	-	0.0%	4,475	640	12,060	17,175
	Other Aluminum (foil)	19	18	0.0%	140	1	0.4%	2,267	1	0.0%	1	139	2,266	2,407
No Markets	Other Wood	4,220	-	0.0%	1,893	-	0.0%	13,130	-	0.0%				19,242
	Other Glass	946	-	0.0%	231	-	0.0%	821	-	0.0%				1,998
	Disposable Diapers	11,105	-	0.0%	4,357	-	0.0%	3,275	-	0.0%				18,738
	Other Waste	51,573	-	0.0%	19,552	-	0.0%	62,757	-	0.0%				133,882
TOTAL		**505,553**	**284,148**	**56.2%**	**98,560**	**13,348**	**13.5%**	**618,362**	**230,688**	**37.3%**				**694,291**

Notes:

Banned ER15-04AM

These materials are required to be recycled under Executive Regulation 15-04, and are banned from disposal in waste from all sectors.

Encouraged

Altough not subject to a disposal ban, these materials are recycled via standing programs. Consistent, if not strong, markets exist for these materials. Textiles are recycled only via voluntary drop-offs (does not include donations).

Potential

Markets exist for these materials, or could exist with additional processing. (On 7/01/08, additional rigid plastics were deemed reliably marketable and added to the County's recycling program. This table does not reflect that change.)

No Markets

No existing or anticipated markets for these materials.

Using Table 4-1 to examine just that group of recyclable materials that have been banned from disposal (by Executive Regulations ER15-04AM and ER18-04), it can be shown that those banned materials are already being recycled at an aggregate rate of 63.2 percent. Another inference that can be taken from Table 4-1 is that in order to have achieved an overall system-wide 50 percent recycling rate in FY07 *just on the basis of increased recycling of banned materials alone*, the aggregate capture rate for those banned materials would need to have been increased to 74.3 percent. The County judges, therefore, that achieving its overall 50 percent recycling goal is achievable, but ambitious.

Goals should be ambitious. An important planning question is how and when this goal can be achieved. As reviewed in Chapter 3, and detailed above and in Appendix B, the County's recycling rate for Fiscal Year 2007 was over 43 percent.

The tonnage projections provided in Chapter 3 (See Table 3-10) envision the County reaching 47 percent recycling in FY11, and then leveling off at that level. In this regard, it should be understood that Montgomery County's system of finance, requiring a nexus between its system of solid waste charges and tonnages, dictates that published County solid waste tonnage projections be consistent with those of its approved Fiscal Plans. Annually, within its budget process, the County updates the solid waste tonnage projections underlying its proposed Fiscal Plan, and that Fiscal Plan, which encompasses an eight year span, is proposed each March 15. As a matter of prudent fiscal policy and process, the County's tonnage projections published in any year, may not presume any future-year approvals of new, as yet un-appropriated programs or initiatives, other than those proposed for the subject Budget Year. Thus, the tonnage projections presented in Chapter 3 of this plan are consistent with the County's Fiscal Plan for Solid Waste Management published Mach 15, 2008.

Yet, achieving or exceeding a 50 percent overall recycling rate by the end of Calendar Year 2010 remains the County's goal. The challenges toward meeting that goal are multiple—to annually advance recycling achievement within the fiscal constraints of approved programs, to track achievement, continually identify new opportunities to enhance recycling achievement, and ultimately achieve the goal.

Needs Assessment and Plan Direction:

To do this, the County maintains an ongoing recycling planning and implementation process. Formally punctuating that process, the County annually publishes its "Recycling Plan Update**".** That Plan reports on specific program achievements, lays out how the 50 percent goal is being pursued under approved programs, and identifies potential additional initiatives that can be introduced in a subsequent budget year, if needed, to meet the 50 percent goal. The Recycling Plan Update can be obtained by contacting DEP. The County will continue to update that plan annually, and will introduce additional programs and initiatives if needed.

It is important to note that this Comprehensive Solid Waste Management Plan, need not be amended in order for the County to amend, from time to time (as it does annually as part of its fiscal process) its tonnage projections, its recycling projections, or its Recycling Plan Update. Montgomery County has already surpassed all State recycling requirements, and as will be discussed in subsequent sections of this Plan, the County provides a disposal system that is more than adequate to dispose of all non-recycled or non-recyclable MSW even if the recycling rate does not increase as projected in this Plan.

4.1.2.1 Single-Family Residential Sector Recycling

Current Conditions and Constraints: As mandated by Executive Regulation 15-04AM, the County provides curbside collection of recyclable materials to over 208,000 single-family residences in unincorporated areas of the County. Residents of 36,000

single-family households located in incorporated municipalities receive municipally arranged recycling service.

Separated materials recycled through the County's curbside collection program include glass, plastic, aluminum and ferrous containers and newspaper. In 1994, the County added collection of yard trim (grass, leaves and brush) to the curbside service. In 1996, the County added household scrap metal items (swing sets, iron railings, large appliances, disassembled metal sheds, etc.) to the curbside recycling program. In 2000, the County added mixed paper (junk mail, catalogs, paperback books, magazines, cardboard boxes, newspaper, office paper and telephone books) to the curbside recycling program. The County also provides leaf vacuuming services in the Leaf Collection District described in Section 3.2.4 of this Plan.

To support the recycling collection program, the County operates a MRF in Derwood, Maryland. This facility provides for segregation of commingled containers and also serves as a transfer station for transport of mixed paper. The County also operates a leaf and grass composting facility in Dickerson, Maryland.

Field surveys have indicated that participation in the curbside recycling program has exceeded 80 percent of eligible households. Table 4-1 shows that in Fiscal Year 2007, single-family homes in the County set out 20,849 tons of commingled recyclable containers and 73,029 tons of tons of mixed paper.

In Fiscal Year 2007, the single-family residential sector accounted for 41.4 percent of the total County municipal solid waste generation (MSW) and recycled 56.2 percent of the MSW it generated.

In addition to a strong public education and outreach program, a key to this success is that the County uses large (65 gallon), heavy duty, wheeled, and lidded carts for collecting residential mixed paper (RMP) from single-family homes. Where these carts

are found to be too large to be easily stored (e.g. at many townhouses) the County offers more moderately sized carts. In all cases, virtually all forms of unsoiled paper are accepted. In fact, the County has banned disposal of recyclables mixed in with disposable trash, any form of paper that could otherwise be recycled if not soiled (see Executive Regulations 15-04AM and 18-04).

Needs Assessment and Plan Direction: While a large percent of residents participate in the curbside recycling program, waste composition studies conducted at the Transfer Station reveal significant quantities of recyclable materials discarded as refuse. Greater capture of existing materials may add several percentage points to the single-family residential recycling rate.

The County has developed a single-family residential recycling system that relies on source separation of recyclable paper, containers, yard trim and scrap metal at the curb in front of each resident's home. Source separation allows for more efficient re-use and marketing of recyclables. Given the County's investment in a curbside collection system and the MRF, the County does not envision a need to develop additional recycling drop-off centers (see Section 4.1.2.4). However, outreach, education and enforcement are continuing important needs in the single-family sector. Also, while the recycling effectiveness of county-wide distribution of large lidded wheeled carts has been proven, residents, in particular town houses, continue to request carts of varying sizes. DEP will attempt to accommodate cart size variation requests that it believes will foster increased recycling and monitor results.

With respect to those recyclable materials that have been banned from disposal, as a group, Table 4-1, indicates a single-family recycling capture rate of over 78 percent. Even discounting the most highly recycled component, yard waste, the single family sector is capturing 60 percent of those materials that are banned from disposal.

A recent survey of homes receiving county collection services indicated that residents *believe* that they participate a high rate of compliance with the County's recycling program. The same survey indicated a lack of awareness and use of the County's curbside scrap metal collection service. In deed, relative to the multi-family and non-residential sectors, Table 4-1 indicates higher single-family recycling capture rates and thus higher over all compliance with recycling rules within the single-family sector. However, as also indicated in Table 4-1, there remained over 73,000 tons of recyclable materials, banned from disposal, disposed of by single-family residences, including 52,000 tons of residential paper. This indicates that recycling outreach, education and enforcement are continuing needs in the single-family sector.

4.1.2.2 Multi-Family Residential Sector Recycling

Current Conditions and Constraints: Executive Regulation 15-04AM mandates recycling of aluminum, bi-metal, steel, glass and plastic containers, mixed paper, scrap metal, Christmas trees and yard trim at all apartment and condominium properties. While property owners and managers administer the collection of recyclables for multi-family residences, the County provides technical assistance, education, and training regarding on-site collection alternatives and management of collection contracts. Education and training is also provided directly to residents.

The County enforces multi-family recycling regulations through mandatory reporting requirements and a combination of site investigations, on-site verification of exemptions, and fines.

In Fiscal Year 2007, the multi-family residential sector accounted for 8.1 percent of the total County waste generation. Multi-family residents recycled 13,348 tons or 13.5 percent of the waste generated in the sector. Waste composition studies conducted at the Transfer Station reveal significant quantities of recyclable materials from multi-family residences discarded as refuse.

Needs Assessment and Plan Direction: Advancements are necessary to maximize recycling in the multi-family sector. Opportunities exist to increase recycling by the multi-family residential sector. The primary strategy for increasing multi-family residential recycling is to conduct on-site training and provide guidance to promote full compliance with County regulations and enforcement actions. In addition, DEP is studying the current costs of recycling and waste disposal collection experienced by multi-family properties and is assessing the feasibility of collection scenarios which would successfully decrease the realized and internalized costs of recycling, thus creating economic incentives to recycle, and to recycle more. DEP consistently evaluates market conditions in the region, and recommends recycling of other materials for which markets are available and favorable, relative to disposal.

4.1.2.3 Non-Residential Sector Recycling

Current Conditions and Constraints: Executive Regulation 15-04AM, enacted in 2005, mandates recycling of glass, plastic, aluminum and ferrous containers, mixed paper, scrap metal, Christmas trees and yard trim by more than 35,000 organizations in the non-residential sector. While commercial, industrial and institutional property owners and managers administer the collection of recyclables for their sites, the County provides technical assistance and training regarding on-site collection alternatives and management of collection contracts. Education and training is provided to business owners, managers, and employees.

The County enforces non-residential recycling regulations through mandatory reporting requirements and a combination of site investigations, on-site verification and fines.

In Fiscal Year 2007, the non-residential sector accounted for 50.6 percent of the total County solid waste generation and recycled 230,685 tons or 37.2 percent of the solid waste generated in the sector. Waste composition studies conducted at the Transfer

Station reveal significant quantities of recyclable materials from the non-residential sector discarded as refuse.

Needs Assessment and Plan Direction: Advancements are necessary to maximize recycling in the non-residential sector. While most large and mid-sized employers in the County have implemented recycling programs, many small businesses lack the resources, training, and experience to readily incorporate on-site recycling.

Referring again to Table 4-1, substantial opportunities exist to increase recycling in the non-residential sector. The primary strategy for increasing non-residential recycling is to conduct on-site training and provide guidance to promote full compliance with County regulations and enforcement actions. In addition, DEP has studied the costs of recycling and waste disposal collection experienced by businesses and organizations and has demonstrated repeatedly via its COOP program (discussed next) the feasibility of collection scenarios which successfully decrease the realized and internalized costs of recycling, thus creating economic incentives to recycle, and to recycle more. DEP also consistently evaluates market conditions in the region, and recommends recycling of other materials for which markets are available and favorable, relative to disposal. The County Executive's Recycling Task Force plays a large role as an advocate for effective and efficient County recycling initiatives. The business community will continue to be consulted as needed.

Cooperative Collection Methods: Small-scale business owners especially have expressed concerns over the years, such as the cost and availability of recycling and refuse collection services due to the relatively small amount of materials that they generate. Businesses in more densely developed Central Business Districts (CBDs) regularly face space constraints when it comes to placement of recycling and refuse collection containers outside of their establishments. It also became apparent that small businesses face an often disproportionate administrative burden when securing and contracting collection services on their own.

As a result of these concerns, DSWS has been conducting cooperative recycling and refuse collection study projects for small businesses in the Silver Spring, Bethesda and Wheaton CBD's. DSWS support included: on-site waste analysis of each business' waste stream, determining the amount of recyclable material generated, practical advice for securing collection services, education, training and follow up.

Based upon the data collected, the implementation of these cooperative recycling and refuse collection projects has saved money for every participating businesses on their monthly refuse and recycling collection costs as well as reducing their required administrative efforts in terms of contracting for recycling and refuse collection services. Furthermore, the participating businesses have been achieving a recycling rate exceeding the County's 50 percent recycling goal. DEP will continue evaluating this and other opportunities to increase recycling by businesses.

4.1.2.4 Drop-Off Programs

Current Conditions and Constraints: Collection constraints or market conditions limit the feasibility and cost effectiveness of regular collection of certain recyclables at their point of generation. The County provides receptacles at the Shady Grove Processing Facility and Transfer Station (and select other sites) for generators to unload self-hauled recyclables. The County offers drop-off services for: yard trim, mixed paper, bottles and cans, textiles, tires, used motor oil, antifreeze, automobile batteries, building materials, computers, and white goods/scrap metal (large home appliances). Chlorofluorocarbon (CFC) refrigerants and polychlorinated biphenyl (PCB) containing capacitors are removed from white goods in accordance with Federal and State regulations.

Electronics Recycling: The DSWS also recycles computers, televisions and other consumer electronics. The computer recycling program started in 2000, and this was expanded to include other consumer electronics in October, 2007. In April, 2008, this

program was again expanded to include electronics cell phones, PDAs, digital cameras, CD players and anything with a cord. Currently this program recycles about 90 tons of computers and 60 tons of televisions and other electronics per month. DEP is currently conducting a short-term program involving specially advertised and arranged collection events at satellite sites using Park & Ride lots and schools. This started in June 2008 and will continue until after February 2009 when the switch from analog to digital television signals occurs. Currently, E-Structors, located in Elkridge MD, receives material collected via the County's electronics recycling programs. The contract with E-Structors requires them to recycle all material except residue (non-electronic material).

Needs Assessment and Plan Direction: The County will continue to provide drop-off services for certain recyclable materials. The County may modify the drop-off services as needed to reflect changes in the collection program or market conditions. DEP will continue to monitor the needs and opportunities including the need for more electronics recycling and evaluate whether there is a need to continue satellite electronics recycling events.

4.1.2.5 Private Sector Recycling Infrastructure

Current Conditions and Constraints: Large quantities of recyclables, particularly from the non-residential and multi-family residential sectors, are exported from the County for processing and marketing. For many years, land use standards were obstacles to a recycling infrastructure in the County. In 1997, the County Council approved an amendment to the County Zoning Ordinance that provides for the location of a "recycling facility" as a permitted use in select industrial zones.

Needs Assessment and Plan Direction: While out-of-County processing of recyclables is not itself a problem, the lack of nearby recycling acceptance facilities raises the cost and limits the feasibility of additional private sector recycling. While current recycling facility capacity is adequate, future needs will be projected and facilitated when appropriate.

4.1.3 County Provided Disposal System

While the County strives to achieve its overall 50 percent recycling goal, the County's overall solid waste management system needs to be sufficiently robust to assure proper management of all MSW generated in the County. For proper disposal of waste that is either not recycled or not recyclable, Montgomery County employs both Resource Recovery and Landfilling. Consistent with its sustainability objectives, Resource Recovery is preferred over landfilling, but the combination of both is provided to assure a complete system.

4.1.3.1 County Resource Recovery Facility

Current Conditions and Constraints: In August 1995, the County began operation of a mass-burn RRF in Dickerson, Maryland. Waste that is delivered to the County's Shady Grove Processing Facility and Transfer Station and considered processible at the RRF is transported by rail to the RRF for "waste-to-energy" processing and ferrous metals recovery. Processing at the RRF recovers heat generated from the controlled combustion of MSW to produce steam which drives a turbine to generate electricity which is competitively marketed to the grid. In addition to renewable energy recovery, ferrous metals are recovered from RRF residue and competitively sold into the scrap metal market. The permitted calendar year throughput capacity of the RRF facility is 657,000 tons per year (indexed to waste with a higher heating value of 5,500 BTU per pound).

Needs Assessment and Plan Direction: The County will regularly monitor and evaluate all aspects of RRF operations to ensure that waste transport and processing is conducted in a cost efficient and environmentally sound manner.

4.1.3.2 County-Provided Landfilling

Current Conditions and Constraints: For disposal of RRF residue, bypass and non-processible waste, the County has secured a long term out-of-County hauling and disposal agreement with Brunswick Waste Management Facility, Inc. (BWMF). Under the agreement, the contractor must accept at the Transfer Station, RRF, or other county delivery site, handle transport and dispose of all waste delivered by or on behalf of the County in accordance with applicable law. The contractor must provide all equipment necessary and there is no upper limit on the tonnage that must be accepted and disposed by the contractor. The initial term of the County's agreement extends through 2012 and includes an option, exercisable at the County's sole discretion, to extend the term through 2017. The same contract also provides for back-up landfill capacity in Georgia, or other approved locations, should the Brunswick County facility become unavailable. This is discussed further in the next chapter (Section 5.2.1.5.).

The County has also purchased property off Wasche Road in the Dickerson area (known as "Site 2") for use as a future landfill site if needed, and has obtained a waste disposal permit for a landfill on this site.

Needs Assessment and Plan Direction:

The County intends to retain the Site 2 property through the ten-year planning period and beyond for use in the event economic conditions or changes in law render out-of-County waste disposal infeasible. If the need arose to use the Site 2 landfill, it would provide at least ten years of disposal capacity.

4.1.4 Regional Non-County MSW Disposal Facilities

Private sector collectors in Montgomery County have many options other than the County's Transfer Station to take their MSW.

Current Conditions and Constraints: Figure 4-2 shows the locations of disposal facilities accepting out-of-jurisdiction MSW, and corresponding Table 4-2 shows their road-distances from the center of Montgomery County.

During FY07, private sector collectors chose to dispose of 159,602 tons of MSW at out-of-County facilities. The most popular of these, with respect to Montgomery County collectors, were the Annapolis Junction, and the District of Columbia transfer stations. Capacity of these facilities are not fully utilized. The Annapolis Junction facility is permitted for 3,000 TPD, but typically handles only about 2,000 TPD. The District of Columbia transfer stations have recently been expanded.

In the District of Columbia, there are four transfer stations where private haulers who serve Montgomery County take their waste. Two of these--Fort Totten and Benning Road—are owned by the District of Columbia government and the other two are private. Both of those two DC government facilities just recently have been renovated. Their combined annual throughput capacity is 1,000,000 TPY, and of that one million TPY capacity, DC government reports a total throughput of only 520,400 tons.[1] During FY07, about 56 percent of the private sector MSW export from Montgomery County went to the Annapolis Junction facility, and about 30 percent went to facilities located in the District of Columbia. Montgomery County haulers have only just begun (in FY08) to use the Benning Road Facility.

1 Personal communication with Jeffery Dickerson, District of Columbia, 11/10/08.

Figure 4.2

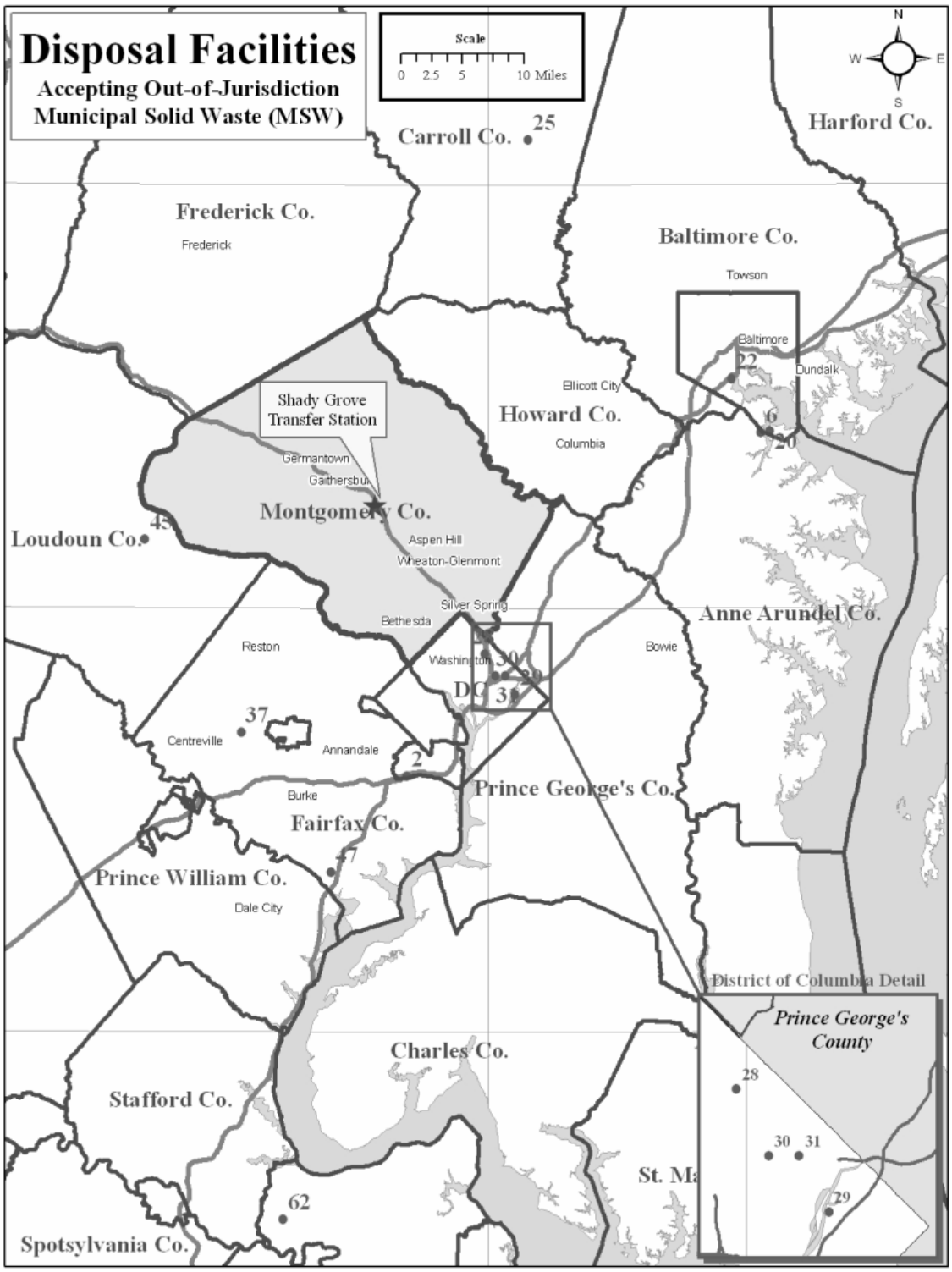

Disposal Facilities
Accepting Out-of-Jurisdiction
Municipal Solid Waste (MSW)
Scale
0 2.5 5 10 Miles
N
W
E
S
Carroll Co.
25
Harford Co.
Frederick Co.
Frederick
Baltimore Co.
Towson
Baltimore
22
Dundalk
Ellicott City
Howard Co.
Columbia
6
20
Shady Grove
Transfer Station
Germantown
Gaithersburg
Montgomery Co.
Loudoun Co.
45
Aspen Hill
Wheaton-Glenmont
Silver Spring
Bethesda
Anne Arundel Co.
Reston
Washington
DC
30
31
Bowie
37
Centreville
Annandale
2
Prince George's Co.
Burke
Fairfax Co.
7
Prince William Co.
Dale City
District of Columbia Detail
Prince George's
County
Charles Co.
28
30
31
29
Stafford Co.
St. Ma
62
Spotsylvania Co.

Table 4.2

Disposal Facilities Accepting Out-of-Jurisdiction Municipal Solid Waste (MSW)

FAC_ID	Facility	County	State	Road Distance
2	Alexandria WTE	Alexandria	VA	31
5	Annapolis Junction PF & TS	Anne Arundel	MD	25
6	Curtis Creek PF & TS	Anne Arundel	MD	39
20	Baltimore Procesing Facility and Transfer Center	Baltimore City	MD	40
22	Southwest Resource Recovery (formerly BRESCO)	Baltimore City	MD	37
25	Northern Landfill PF&TS	Carroll	MD	45
28	Fort Totten Trash Transfer Station	District of Columbia	DC	22
29	Benning Road TS	District of Columbia	DC	32
30	Consolidated IPC (a.k.a) Federal IPC	District of Columbia	DC	24
31	Waste Management of MD, Inc (Northeast TS)	District of Columbia	DC	32
37	Fairfax County TS - a.k.a I-66	Fairfax	VA	28
45	Old Dominion Transfer Sstation	Leesburg	VA	37
47	Fairfax County WTE	Lorton	VA	36
62	King George County Landfill	King Georges	VA	75

Table 4.3

Private Sector MSW Export

Facility Name	Location	FY07 Tons	Percent
Annapolis Junction	Jessup	89,000	55.8%
Fort Totten (DC Government)	NE, Washington DC	32,696	20.5%
Waste Mgmt.	Queens Chapel Rd., NE	16,495	10.3%
Federal IPC	W St., NE	9,740	6.1%
Ameriwaste	Elkridge	3,376	2.1%
Brown Station	Upper Marlboro	2,561	1.6%
Ten Other Locations	Various	5,734	3.6%
Benning Road (DC Government)	NE, Washington DC	-	0.0%
Total		**159,602**	100.0%

As a practical matter, private sector collectors have, and are expected to continue, to utilize regional options for disposal, and recognizing this is important to the proper management of our integrated solid waste management system.

4.1.5 Municipal Solid Waste Composting

Current Conditions and Constraints: With the exception of yard trim composting, no measurable portion of the County's MSW stream is processed through composting.

Mixed MSW composting is a developing technology that has not been included as a component of the County's solid waste management system. Moreover, no private facilities currently exist in the region to compost mixed MSW, and based on the commercial the status of the technologies, none is expected in the near future.

As a categorical component of MSW, food waste represents an estimated 113,500 tons of disposed waste according to Table 4-1, and thus a theoretical opportunity for increased recycling. Limited private sector efforts have been made in the region to separately collect select sources food wastes for composting, but with uncertain results and uncertain outlook.

Needs Assessment and Plan Direction: The solid waste management system developed by the County has been designed to achieve all State and County goals and requirements without reliance on large scale mixed MSW composting. This County does not envision a need to engage in mixed MSW composting during the next ten years. However, developments in composting of separately-collected food waste should be tracked and opportunities examined as potentially contributing to increased recycling within the planning horizon.

4.1.6 Solid Waste with Hazardous Characteristics

Current Conditions and Constraints: Some common household and business waste materials in MSW may have hazardous characteristics (toxicity, ignitability, corrosivity, or reactivity). Waste materials with hazardous characteristics that may be found in homes and small businesses include: pesticides, oil-based paints, paint thinners

and solvents, batteries[2], fuels, used motor oil, brake fluid, antifreeze, photographic chemicals and compact fluorescent light bulbs (CFLs).

Household hazardous waste (HHW) is not required to be handled separately as hazardous waste under state and federal law if certain conditions are met. However, DEP programs have been implemented to promote the source separation of these materials from MSW, along with a program for handling waste from businesses that qualify under USEPA rules as small quantity generators.

In July 2004, the HHW program began operation of a permanently staffed site at the Shady Grove Processing Facility and Transfer Station. In August of 2006, the HHW program expanded its operations from approximately four days per week to seven days a week. In addition, the HHW program also includes four satellite collection events each year. Approximately 60,000 households participate in the HHW collection program each year. Since its inception, the HHW program has processed tons of toxic, flammable, corrosive and reactive materials.

In 1996, the County launched the Eco-Wise program to receive materials from businesses that generate small quantities of such wastes. Businesses served by this program are known as "small quantity generators." Montgomery County is the only jurisdiction in the State of Maryland to provide this service to businesses.

DEP currently accepts CFLs as part of its Household Hazardous Waste program. Since CFLs and fluorescent tubes are Universal Wastes, not hazardous wastes, the County's HHW contractor accepts them from businesses at any time for a small fee, and they do not need to wait for the once-a-month ECOWISE program which serves small quantity generators.

Also, for electronics recycling, see discussion in Section 4.1.2.4., above.

2 The battery types that require special disposal are: rechargeable nickel-cadmium (Ni-Cd) and nickel metal hydride (NiMH) batteries, small sealed and automotive lead acid batteries, and lithium, mercuric oxide, silver oxide batteries.

Needs Assessment and Plan Direction: DEP will pursue additional opportunities to expand participation in both the HHW and small quantity generator programs in a cost effective manner. There is growing use of and interest in CFLs. Some private retailers such as Home Depot and IKEA stores have begun to offer CFL recycling opportunities at their stores. These retailers contract CFL collection services with their current hazardous waste collection company or through designated CFL recycling collection companies and programs. DEP will encourage this practice, and also will investigate the feasibility of County-sponsored satellite collection centers for CFLs and fluorescent tubes.

4.2 MANAGEMENT NEEDS: SPECIAL WASTE STREAMS

4.2.1 Land Clearing and Demolition Debris Needs

Traditionally the bulk of rubble and land clearing debris was handled almost exclusively by the private sector, with the County handling only about 40,000 TPY of materials generated by its own road operations. In recent years, however, in particular since about 2003, the County has received more and more C&D generated by the private sector and by FY07, the County transfer station had become the favored destination for most of the C&D generated within the County.

Current Conditions and Constraints: As reported in Chapter 3, during FY07, the County received at its transfer station 139,227 tons (or 58 percent of the total C&D generated), and private facilities received about 103,000 tons (or 42 percent of the C&D total generated). Table 4-4, below, presents more specifically, the generation and disposition of the 242,013 tons of C&D generated in the County during FY07.

Table 4.4

	Tons		Tons	
Total C&D Generation, FY07	242,013	100%	Breakouts	
Received by Montgomery County	139,227	58%		
Recycled by County (does not count toward Recycling Rate)			1,965	0.8%
Disposed by County via its Out-of-County (OOC) Landfill Contract			94,679	39.1%
Burned by County in RRF (remaining ash also disposed in OOC Landfill)			42,583	17.6%
Handled Entirely by the Private Sector	102,786	42%		
Clarksburg C&D (< 40% gets recycled. Permited for 250,000 TPY)			39,039	16.1%
39 Other Private Facilities (59,000 tons went to just 12 other facilities)			63,747	26.3%

In addition to the County's Transfer Station, there is one facility located with in the boarders of the County, Clarksburg, Maryland, which is permitted to accept and process C&D for recycling. The Clarksburg facility opened in 2005, and is permitted to receive up to 250,000 TPY of C&D. During FY07, however, that facility accepted only 39,039 tons Most of this was delivered by collectors affiliated with the owner. This is apparent underutilization of capacity is at least partly attributable to the fact that not all types of C&D can be processed at the facility due to limitations on the separations that can be achieved there relative to the conditions of the mix collected and potentially delivered. There may also be private and economic circumstances. The facility appears to maintain its tipping fee slightly higher that the County's. Less than 40 percent of the incoming material at the Clarksburg facility is recycled—the balance being disposed in rubble fills located outside the County.

As noted in Table 4-4, there are another 39 outside the County that accepted C&D, with just 12 of them accepting 63,747 tons in FY07 and accounting for the disposition of 26 percent of total C&D generated. Table 4-5 details the FY07 disposition of that 102,786 tons of C&D that was handled entirely by the private sector during FY07 (e.g. not delivered to the County).

Table 4.5

FY07 Construction and Demolition Private Sector Export from Montgomery County by Destination

Facility Name	Facility Location	State	Tons
C & D Recovery PF	**24120 Frederick Rd, Clarksburg MD 20871**	**MD**	**39,039.30**
Ritchie Land Rubble LF	2001 Ritchie Marlboro Rd, Upper Marlboro MD 20772	MD	27,316.46
Merrifield	2801 Dorr Ave, Fairfax VA 22031	VA	4,937.95
Annapolis Junction PF & TS a.k.a Garret TS	8077 Brock Bridge Rd, Jessup MD 20794	MD	4,679.83
TRC	14852 Old Gunpowder Rd., Laurel	MD	4,435.30
Ameriwaste PF & TS	7150 Kit Kat Rd, Elkridge MD 21075	MD	4,434.68
Consolidated IPC (a.k.a) Federal IPC	1220 W St, NE Washington DC 20018	DC	3,304.25
Sheriff Road PF & TS (a.k.a Brandywine Sand & Gravel)	5800 Sheriff Rd, Capitol Heights MD 20743	MD	2,604.03
Lorton C D D Landfill	10001 Furnace Rd, Lorton VA 22079	VA	2,442.44
Hilltop Sand and Gravel	7950 Telegraph Rd, Alexandria VA 22315	VA	1,885.70
Percontee	11700 Cherry Hill Road Silver Spring MD 20904	MD	1,487.70
Agregate and Dirt Solutions (a.k.a ADS)	Capitol Heights	MD	1,187.73
Alexandria Waste	Dumfries	VA	1,055.14
RBS	Lawrence Ave., NE	DC	796.00
Eyler Rubblefill	Libertytown	MD	478.00
EAR of MD	Baltimore	MD	303.36
Curtis Creek PF & TS	23 Stahls Point Rd, Baltimore MD 21226	MD	287.36
Honeygo Run Rubble Landfill SE	10710 Philadelphia Rd, Perry Hall MD 21128	MD	270.83
Roll-Off Express PF	2900 Dede Rd, Finksburg MD 21048	MD	205.00
Southwest Resource Recovery (formerly BRESCO)	1801 Annapolis Rd, Baltimore MD 21230	MD	182.18
L & W	8308 Lokus Rd., Odenton	MD	175.00
ECR	W St.	DC	165.51
Reliable	Brickhead Rd., Gambrills	MD	150.00
Recovermat Mid-Atlantic, LLC PF	2202 Halethorpe Farm Rd, Baltimore MD 21227	MD	139.80
Reico	1801 Annapolis Rd., Baltimore	MD	110.83
Days Cove Rubble Landfill	6425 Days Cove Rd, White Marsh MD 21162	MD	110.83
C & D Recovery II	Balls Ford Rd., Manassas	VA	96.82
Rodgers Brothers	2225 Lawrence Ave, NE Washington DC 20018	DC	85.68
Old Fort Farms	Ft. Washington	MD	80.00
PMI	6931 B&A Blvd., Baltimore	MD	76.00
Calvert Trash System	Owings	MD	65.00
DC Rock, Washington	1721 S Capitol St SW, Washington DC 20003	DC	50.00
Old Dominion Transfer Station	42228 Cochran Mill Rd, Leesburg VA 20175	VA	43.35
Waste Management of MD, Inc (Northeast TS)	2160 Queens Chapel Road, NE Washington DC 20018	DC	20.00
Barnabas Pit	Clifton Rd., Temple Hills	MD	20.00
Baltimore Procesing Facility and Transfer Center	5800 Chemical Rd, Baltimore MD 21226	MD	18.00
Fort Totten Trash Transfer Station	4900 Bates Rd, NE Washington DC 20011	DC	16.06
Reliable Recycling Center	Frederick	MD	15.00
DC Materials Inc.	Hyattsville	MD	15.00
Total Construction and Demolition Tons Exported			**102,786.12**

Source: Reports Submitted by Licensed Haulers and Collectors Under Executive Regulation 58-92 AM

Some of the facilities noted above accepted quite small quantities of C&D, in particular those located farther away. Figure 4-3, below, maps most of these facilities, and accompanying Table 4-5 shows road-distances from the center of Montgomery County.

Figure 4.3

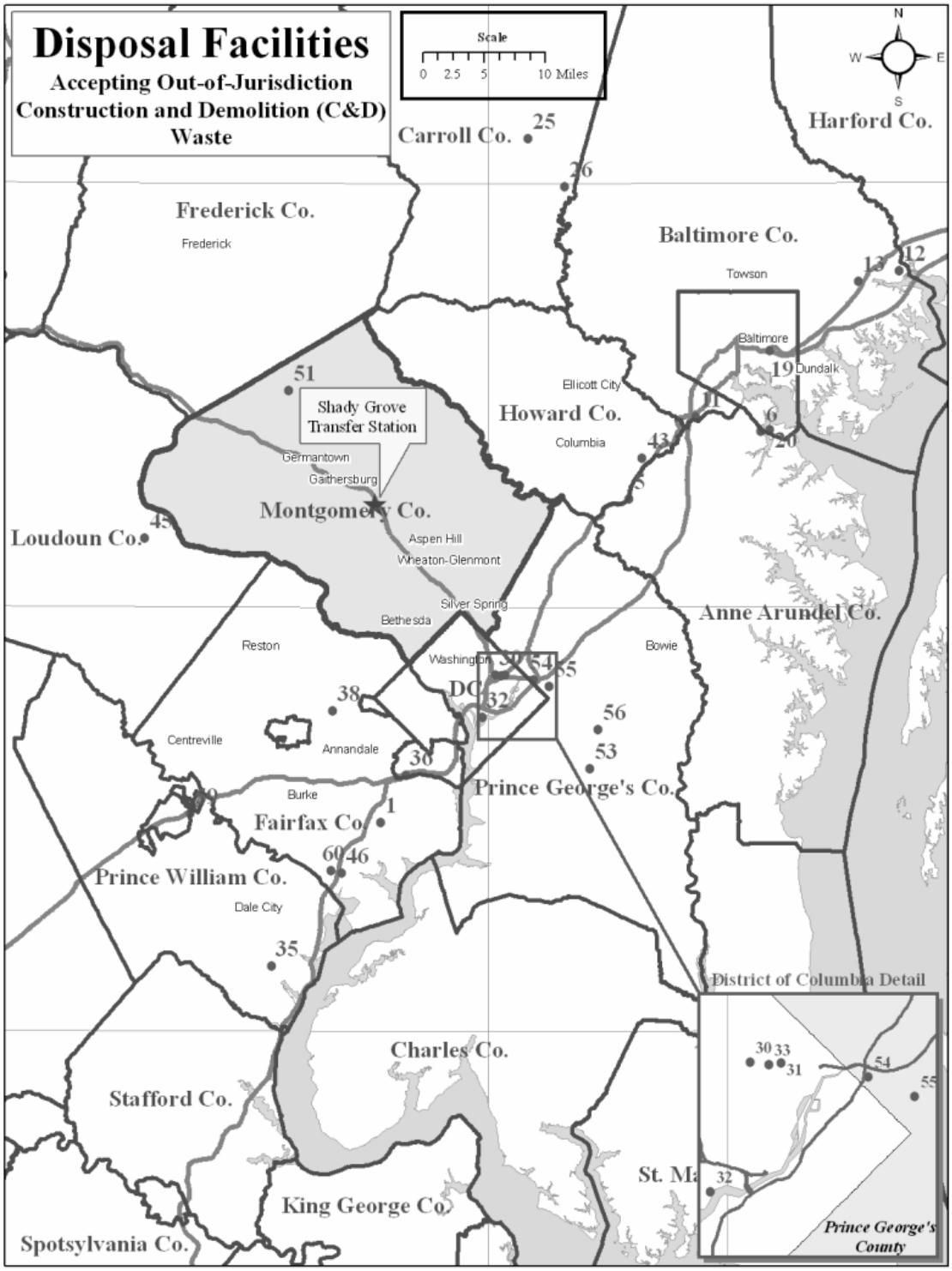

Disposal Facilities
Accepting Out-of-Jurisdiction Construction and Demolition (C&D) Waste
Scale
0 2.5 5 10 Miles
N
W
E
S
Carroll Co.
Harford Co.
Frederick Co.
Frederick
Baltimore Co.
Towson
Baltimore
Dundalk
Ellicott City
Howard Co.
Columbia
Shady Grove Transfer Station
Germantown
Gaithersburg
Montgomery Co.
Loudoun Co.
Aspen Hill
Wheaton-Glenmont
Silver Spring
Bethesda
Reston
Washington DC
Bowie
Anne Arundel Co.
Centreville
Annandale
Burke
Fairfax Co.
Prince George's Co.
Prince William Co.
Dale City
Charles Co.
Stafford Co.
King George Co.
Spotsylvania Co.
St. Ma
District of Columbia Detail
Prince George's County

Table 4.6

Disposal Facilities Accepting Out-of-Jurisdiction Construction and Demolition (C&D) Materials

FAC_ID	Facility	County	State	Road Distance
1	Hilltop Sand and Gravel	Alexandria	VA	35
5	Annapolis Junction PF & TS	Anne Arundel	MD	25
6	Curtis Creek PF & TS	Anne Arundel	MD	39
11	Recovermat Mid-Atlantic, LLC PF	Baltimore	MD	31
12	Days Cove Rubble Landfill	Baltimore	MD	65
13	Honeygo Run Rubble Landfill SE	Baltimore	MD	61
19	Edison Processing Facility	Baltimore City	MD	51
20	Baltimore Procesing Facility and Transfer Center	Baltimore City	MD	40
25	Northern Landfill PF&TS	Carroll	MD	45
26	Roll-Off Express PF	Carroll	MD	64
30	Consolidated IPC (a.k.a) Federal IPC	District of Columbia	DC	24
31	Waste Management of MD, Inc (Northeast TS)	District of Columbia	DC	32
32	DC Rock, Washington	District of Columbia	DC	28
33	Rodgers Brothers	District of Columbia	DC	32
35	Potomac Landfill	Dumfries	VA	46
36	Alexandria Waste Recovery Facility	Alexandria	VA	31
38	Merrifield	Fairfax	VA	22
43	Ameriwaste PF & TS	Howard	MD	35
45	Old Dominion Transfer Sstation	Leesburg	VA	37
46	Rainwater Landfill	Lorton	VA	37
51	C & D Recovery PF	Montgomery	MD	13
53	Dower House PF	Prince George's	MD	38
54	Kenilworth PF	Prince George's	MD	30
55	Sheriff Road PF & TS	Prince George's	MD	32
56	Ritchie Land Rubble LF	Prince George's	MD	34
59	Manassas Transfer Station	Prince William	VA	39
60	Lorton C D D Landfill	Lorton	VA	36

It should be noted that Figure 4-3 and corresponding Table 4-5 do not necessarily include processing facilities that are not required to be permitted by a local authority. Figure 4-3 maps all available privately run options in jurisdictions adjacent to Montgomery County in Maryland which are known to be accepting C&D type materials. With respect to facilities in Virginia and DC the map only shows those reported by private haulers as being or having been used for disposition of C&D generated within Montgomery County. As a consequence Figure 4-3 and Table 4-5 do not necessarily represent the total number of available facilities for C & D.

Needs Assessment and Plan Direction: As noted above, the amount of C&D generated in the County in FY07 was about 242,000 tons. Because this type of waste is a byproduct of construction, the generation rate of land clearing and demolition debris is linked, for planning projections, to population and employment increases. Thus, this amount is projected to increase, by FY 2016, to 263,266 TPY. With developable land comprising less and less of the County, it is postulated that the nature, or composition, of this type of waste may shift, with reductions in the proportion comprised of land clearing type materials (e.g. large stumps and earth) to a greater portion being comprised of tear-down and renovation type materials, which could increasing the challenge of recycling and disposal of that material.

As Figure 4-4 and Tables 4-3 and 4-4 show, there is no shortage of destinations other than Clarksburg or the County Transfer Station which can and do receive C&D generated in Montgomery County. However, only seven of the 39 facilities inventoried above are equipped for any level of processing for recycling C&D.

Based on the foregoing, no additional County program for C&D appears to be needed at present to provide disposal capacity for private sector generated C&D.

However, the County's hierarchical preference that waste be recycled rather than disposed dictates a planning direction with respect to C&D management. Specifically, the County will continue to explore the fiscal and operational feasibility of increased recycling for land clearing and demolition debris generated from County roadway construction projects. In addition, the County should endeavor to more closely monitor and encourage private sector C&D recycling activities and opportunities.

It should be understood that C&D recycling does not influence the County's recycling rate calculation since C&D is not Municipal Solid Waste (MSW) and is not eligible for recycling credit under the Maryland Recycling Act.

4.2.2 Asbestos Disposal

Current Conditions and Constraints: Since the closing of the County's Oaks Landfill in 1997, The County's solid waste facilities no longer accept regulated asbestos-containing material (RACM) generated in the County. The County does not use its out-of-County landfill, in Brunswick County, VA, for RACM disposal either. Generators of this type of waste contact licensed and permitted asbestos contractors who are experienced in the proper removal, handling, transportation and disposal of RACM in a regulated disposal facility.

Needs Assessment and Plan Direction: There is no need for change to the existing County asbestos disposal policy.

4.2.3 Controlled Hazardous Substances

The term, "Controlled Hazardous Substances (CHS)," refers to hazardous waste as defined in COMAR 26.13.01 and special medical waste as defined in COMAR 26.13.11. These waste materials must be source separated from MSW and require special handling and disposal practices to protect public health and the environment. The management needs of hazardous waste and special medical waste are discussed below.

4.2.3.1 Hazardous Waste Management

Current Conditions and Constraints: Montgomery County generates less hazardous waste than many communities because of its relatively low level of industrial and manufacturing activity. County regulation requires any business that uses, stores, treats, or transfers 50 pounds or more of hazardous materials, including hazardous waste to obtain a Hazardous Materials Use Permit and to register annually with the County

DFRS, Local Emergency Planning Council (as mandated by Federal law). The WSSC regulates the industrial waste discharges into the sanitary sewer system.

All other hazardous waste regulations are implemented and enforced by the State and Federal governments. MDE uses a manifest system to regulate hazardous waste from its point of generation, through its transportation, interim processing and storage, and finally to its ultimate disposal facility. MDE has responsibility for the permitting of TSD facilities, including hazardous waste disposal facilities.

Businesses which generate less than 100 kilograms of hazardous waste (or 1 kilogram of acute hazardous waste) per month, or which store less than 100 kilograms of hazardous waste are considered "small quantity generators" and are exempt from most State hazardous waste management regulations. Small quantity generators operating in Montgomery County may be eligible to dispose of hazardous waste materials through a special drop-off collection program sponsored by DEP (see Section 4.1.6).

Needs Assessment and Plan Direction: No changes in the County's involvement in hazardous waste management are anticipated in the next decade.

4.2.3.2 Hazardous Waste Emergency Response

Current Conditions and Constraints: Under the County's Emergency Operations Plan, Annex P, the Montgomery County DEP is responsible for "detection, monitoring, sampling and analysis of water borne, land borne, and air borne hazards when releases of hazardous materials occur." In addition, Annex Z of this plan provides mandates for addressing hazardous material releases. Annex Z was written in accordance with the requirements of the Federal Superfund Amendments and Reauthorization Act. DEP also has coordination responsibility for addressing releases of hazardous material.

The Division of Environmental Policy and Compliance (DEPC) within DEP periodically updates a Response Procedures Manual to provide specific guidance dealing with releases of hazardous material. Items such as sewage releases are also included in the manual.

Hazardous waste spill incidents, when outside assistance is required, are reported through calls made to "911" within the County are referred to the County Emergency Communications Center. All spills are reported to MDE in accordance with the County's approved Storm Water Management Prevention Plans. The County DFRS hazardous incident response team responds to spills of oil and other hazardous substances. Larger spills may require assistance from the MDE spill team and/or a private cleanup contractor. DFRS is responsible for on-site materials containment and stabilization. Once DFRS has rendered the incident site safe, DEPC coordinates for the removal of the hazardous materials.

Under the County's Water Quality Ordinance (Montgomery County Code, Chapter 19, Section 19-50), DEP can issue fines for illegal dumping on County roads, rights-of-way, streams and storm drains. Through the County's Water Quality Ordinance, DEP established specific procedural guidelines to address any illegal storm drain connections. If an illegal storm drain connection is identified, DEPC may write a Notice of Violation to the responsible party and require corrective actions, including the cleanup of any spilled material and requiring a legal means of discharge. Enforcement of illegal connections is the responsibility of DEPC and the WSSC.

Needs Assessment and Plan Direction: The hazardous waste spill response system adequately serves County needs. No major structural modifications to the system are envisioned during the next 10 years.

4.2.3.3 Special Medical Waste

Current Conditions and Constraints: Special medical waste is generated by hospitals, doctors' offices, medical and research laboratories. State regulations govern the transport and disposal of special medical waste. Special medical waste must be transported by state-licensed haulers and processed at permitted facilities under a State manifest reporting system. Haulers transporting special medical waste within the County must have a County solid waste license.

State law provides a residential use exemption (e.g., for home insulin users) for disposal of home medication material as MSW.

Special medical waste incinerators operate under state permits. At present, no permitted special medical waste incinerators operate in Montgomery County (see Table 3.12).

DEPC enforces air quality provisions of the County Code, reviews State installation and operating permits, and works with the County DPS to enforce compliance with the ventilation requirements of County building standards in relation to any incinerator which operates in the County.

Investigations of improper disposal of special medical waste are conducted by DEPC. If suspicious waste is identified at the Transfer Station, the facility manager contacts DEPC. DEPC investigates and supervises the removal of any improperly disposed special medical waste.

Needs Assessment and Plan Direction: Aside from the licensing and investigative efforts listed in the paragraphs above, the County does not participate in special medical waste management or regulation. Currently all special medical waste generated in the County is processed at private facilities located outside of the County.

4.2.4 Animal Carcass Waste

Current Conditions and Constraints: There are no animal carcass waste rendering facilities in the County. In Fiscal Year 2007, private renderers in Virginia and Pennsylvania processed an estimated 236 tons of animal carcasses, bone and fat originating from the County. In addition, one privately owned pet crematorium operates under State permit in the County. Three private pet cemeteries also operate in the County.

Needs Assessment and Plan Direction: Rendering facilities primarily collect meat byproducts from farms, restaurants, institutions and grocery stores. Domestic pet carcass generators include the County's Animal Services Division in the Department of Police, the Montgomery County Animal Shelter, and pet crematoria. Given facility siting constraints, new rendering facilities and incinerators are unlikely to set up operation in Montgomery County. Over the next ten years, County animal waste generators likely will remain dependent on out-of-County rendering facilities.

4.2.5 Bulky Wastes

Current Conditions and Constraints: Bulky wastes include large household appliances (also known as white goods), other scrap metals and building materials. Bulky items are directed to different areas of the Transfer Station for recycling or disposal depending upon the materials. White goods and other scrap metals are sent to scrap metal dealers for recycling. Reusable building materials dropped off at the Transfer Station are picked up by a non-profit organization located in Baltimore, Maryland, for use in low income housing projects throughout Maryland. Other bulky items that are not suitable for disposal at the RRF are included with other non-processible waste sent for disposal at a private landfill in Brunswick County, Virginia.

As indicated in Chapter 3, County bulky waste generation in FY 2007 is estimated at 50,043 tons per year.

Needs Assessment and Plan Direction: Existing facilities and programs appear sufficient to accommodate bulky waste materials.

4.2.6 Automobiles

Current Conditions and Constraints: Two automobile parts salvage companies operate in Montgomery County. However, no full scale automobile recycling facilities exist within the County. Retired automobiles generally are hauled to auto recyclers located outside of the County. The Montgomery County Police dispose of abandoned vehicles primarily through public auction. The police send approximately ten automobiles per year to scrap dealers.

As indicated in Chapter 3, County scrap automobile generation is estimated at 61,700 tons per year.

Needs Assessment and Plan Direction: No further County involvement in automobile waste management appears warranted for the next decade.

4.2.7 Vehicle Tires

Current Conditions and Constraints: The State of Maryland developed a scrap tire program for the management of scrap tires in Maryland. Many auto service centers in the County arrange for private recycling of their customers' tires at facilities outside of the County. County residents may drop five or fewer scrap tires per year at the County's Transfer Station for recycling.

Needs Assessment and Plan Direction: The existing State scrap tire management system has sufficient capacity to recycle scrap tires generated in the County.

4.2.8 Wastewater Treatment Biosolids

Current Conditions and Constraints: In February 1999, WSSC ceased the delivery of biosolids to the Montgomery County Regional Composting Facility (MCRCF). The biosolids formerly being composted at the MCRCF have been directed to WSSC land application contractors. All local, State and Federal approvals for permanent closure have been received and WSSC has closed this facility.

The four wastewater treatment plants located in the County currently treat approximately 20 mgd of domestic wastewater and generate about 6,000 dry tons per year of biosolids.

There are currently six farms in the County with active permits issued by MDE authorizing Sewage Sludge Utilization for beneficial land use. These permits are held by Synagro Mid Atlantic, Inc., located in Baltimore, Maryland. Biosolids applied under these permits may originate from anywhere in the region. The testing standards and application guidelines for the land application of biosolids are regulated by MDE and the Maryland Department of Agriculture (MDA).

Needs Assessment and Plan Direction: The County will promote the recycling of the nutrients and organic material present in biosolids to benefit growth of crops and improve soils. Land application and composting are the preferred beneficial uses of biosolids. Disposal processes such as landfilling and incineration will not be used as the primary means of biosolids management.

4.2.9 Septage

Current Conditions and Constraints: Approximately 50,000 homes in Montgomery County use a private septic system rather than the public sanitary sewerage system. In addition, about two dozen homes rely on sewage holding tanks. Septic system tanks and holding tanks are periodically pumped by private haulers permitted by the County. Pumped sewage is discharged into the WSSC or other municipal sanitary sewerage systems at controlled entry points.

Using assumed tank capacities and discharge frequencies, the County estimates current and future septic and holding tank septage generation is 18,000 wet tons annually.

Needs Assessment and Plan Direction: Current septage management practices are being reviewed by WSSC and Montgomery County DEP. In 2009 WSSC expects to propose an updated management plan for the septage hauled to its facilities.

4.2.10 Other Wastes

Current Conditions and Constraints: As stated in Chapter 3, Montgomery County generates insignificant quantities of agricultural wastes and mining wastes.

Ferrous metals are extracted from the mix of RRF ash and residue and the remaining materials are transported to a privately operated MSW landfill in Brunswick County, Virginia.

Litter and recreational wastes are considered MSW and are processed along with all other MSW received at County facilities.

Street sweepings are included with the non-processible waste transported to a privately operated landfill in Brunswick County, Virginia.

Needs Assessment and Plan Direction: The County has established appropriate and sufficient facilities and programs for the management of agricultural wastes, mining wastes, litter, recreational wastes, and street sweepings. No significant change in the management of these wastes appears warranted during the life of this plan.

4.3 CONSTRAINTS ON NEW SOLID WASTE ACCEPTANCE FACILITIES

4.3.1 Physical Constraints on Waste Acceptance Facilities

Current Conditions and Constraints: Several physical characteristics of the land in Montgomery County influence the siting of new solid waste acceptance facilities. These constraints include: topography, soil types, geologic conditions, aquifers, wetlands and surface waters.

(a) Topography -- The general topography of Montgomery County is illustrated by Figure 4.4. The County is dominated by a rolling plain or "low hill" landscape. Hills are concentrated in the northern part of the County and adjacent to the major stream valleys. The highest point in the County is 873 feet above sea level; the lowest point in the County is 52 feet above sea level. The average elevation gradient is 29 feet per mile.

In general, the effort and costs of site preparation for most solid waste facilities increase as the topographic variation increases. Council Resolution 11-787 (1988) established County criterion for preferred landfill topography specifying that "gently rolling uplands will be preferred as landfill sites to flat, steeply sloping, or valley bottom areas." The complete list of County landfill site selection criteria appears in Appendix C. Although grading costs may increase as a result, this criterion intends to avoid low, flat areas, where poor drainage could result in ground water or surface water problems. Steep areas would be prone to erosion; and valley bottom areas are crucial for watershed drainage and maintaining water quality.

(b) Soil Types[3] -- The soils of Montgomery County consist of one of six general descriptions. The locations of these soil types appear in Figure 4.5.

"Glenelg-Gaila-Occoquan" soils are nearly level to strong sloping, well drained, deep and very deep soils that are loamy throughout. This soil type is found in the central part of the County and extends to the east and south. It is found on broad ridgetops and side slopes. Glenelg-Gaila-Occoquan soils make up approximately 41 percent of the County.

"Brinklow-Baile-Occoquan" soils are nearly level to moderately steep, well and poorly drained, moderately deep soils that are loamy throughout. This soil type is found in the northern part of the County. It is found on broad ridgetops and side slopes. Brinklow-Baile-Occoquan soils make up approximately 16 percent of the County.

"Urban Land-Wheaton-Glenelg" soils are nearly level to strongly sloping, well drained, very deep soils that are loamy throughout. This soil type is found in primarily in the Germantown area and in southern and eastern portions of the County. It is found on broad ridgetops and side slopes. Urban Land-Wheaton-Glenelg soils make up approximately 16 percent of the County.

"Penn-Brentsville-Readington" soils are nearly level to steep, well and moderately well drained, moderately deep and deep soils that are loamy throughout. This soil type is found in the western part of the County. It is found on broad ridgetops and side slopes. Penn-Brentsville-Readington soils make up approximately 14 percent of the County.

3 Source: Soil Survey of Montgomery County, Maryland, USDA Natural Resource Conservation Service in cooperation with the Montgomery Soil Conservation District, July 1995.

"Blocktown-Brinklow-Linganore" soils are gently sloping to steep, well drained and moderately deep soils that are loamy throughout. This soil type is found in the northern part of the County. It is found on broad ridgetops and side slopes. Blocktown-Brinklow-Linganore soils make up approximately 10 percent of the County.

"Chillum-Croom-Beltsville" soils are nearly level to steep, well drained and moderately well drained, very deep soils. This soil type is found in the eastern part of the County along the Prince George's County line. It is found on broad ridgetops and side slopes. Chillum-Croom-Beltsville soils make up approximately 3 percent of the County.

(c) Geologic Conditions[4] -- The County lies almost entirely in the Piedmont physiographic province where the bedrock consists predominantly of metamorphic rocks of the Paleozoic age. Consolidated sedimentary rocks of Early Triassic age occupy a down-faulted basin in the western part of the County. On hills and ridges along the eastern border, small erosional remnants of unconsolidated Cretaceous sedimentary rocks extend westward from the Coastal Plain in Prince George's County (see Figure 4.6).

The bedrock in the eastern two-thirds of the Piedmont consists of rocks of the Wissahickon Group. The best example of these rocks is exposed in the quarry of Rockville Crushed Stone Company south of Hunting Hill. The serpentinite here is quarried for use as crushed stone aggregate. Quarries for building stone in the micaceous quartzite are located in several places of the western schist belt.

[4] Source: "Bedrock Geology of Montgomery County," compiled by Jonathan Edwards, Jr., Maryland Geological Survey, Baltimore, MD. December 1992.

Figure 4.4

County Topographic Map

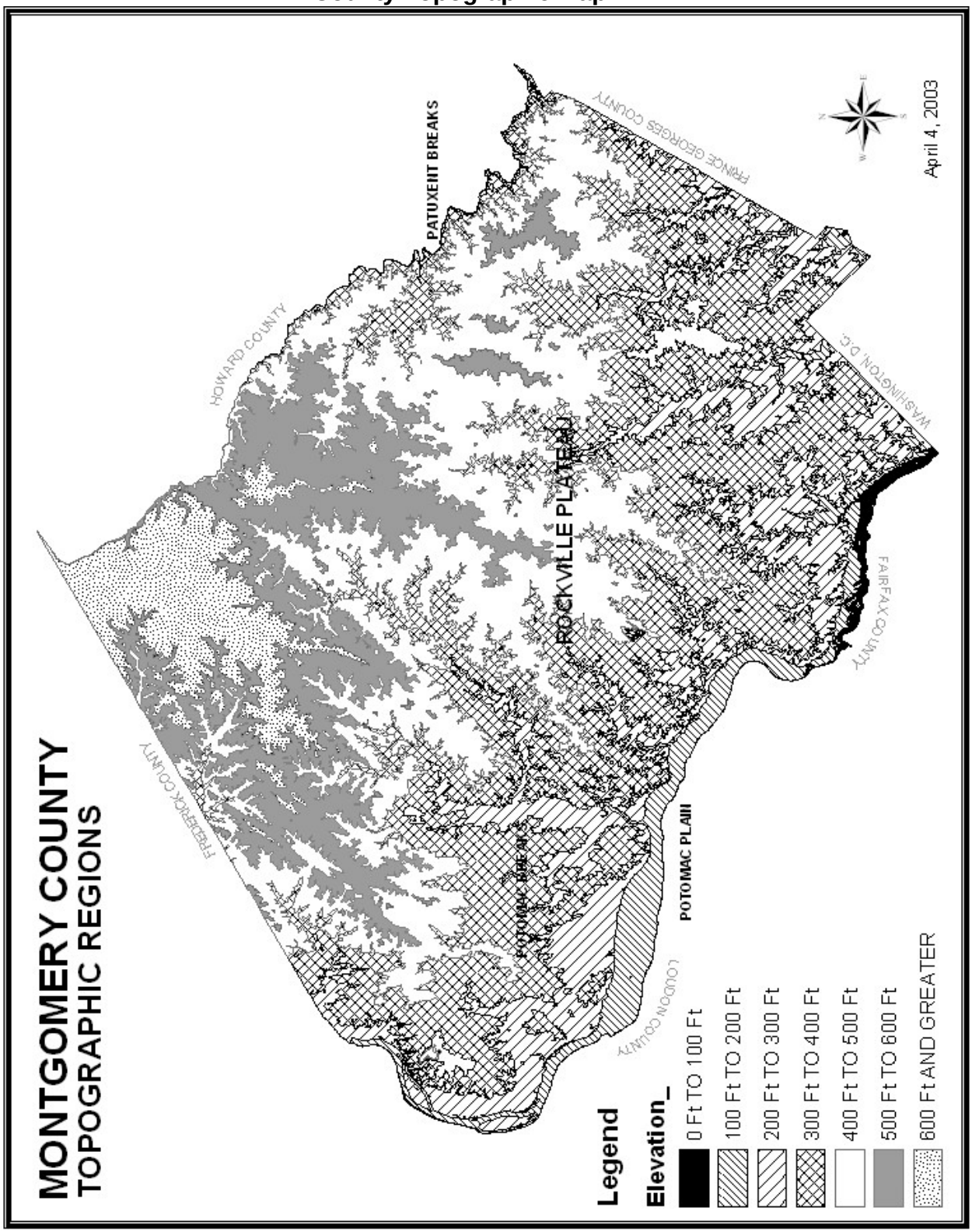
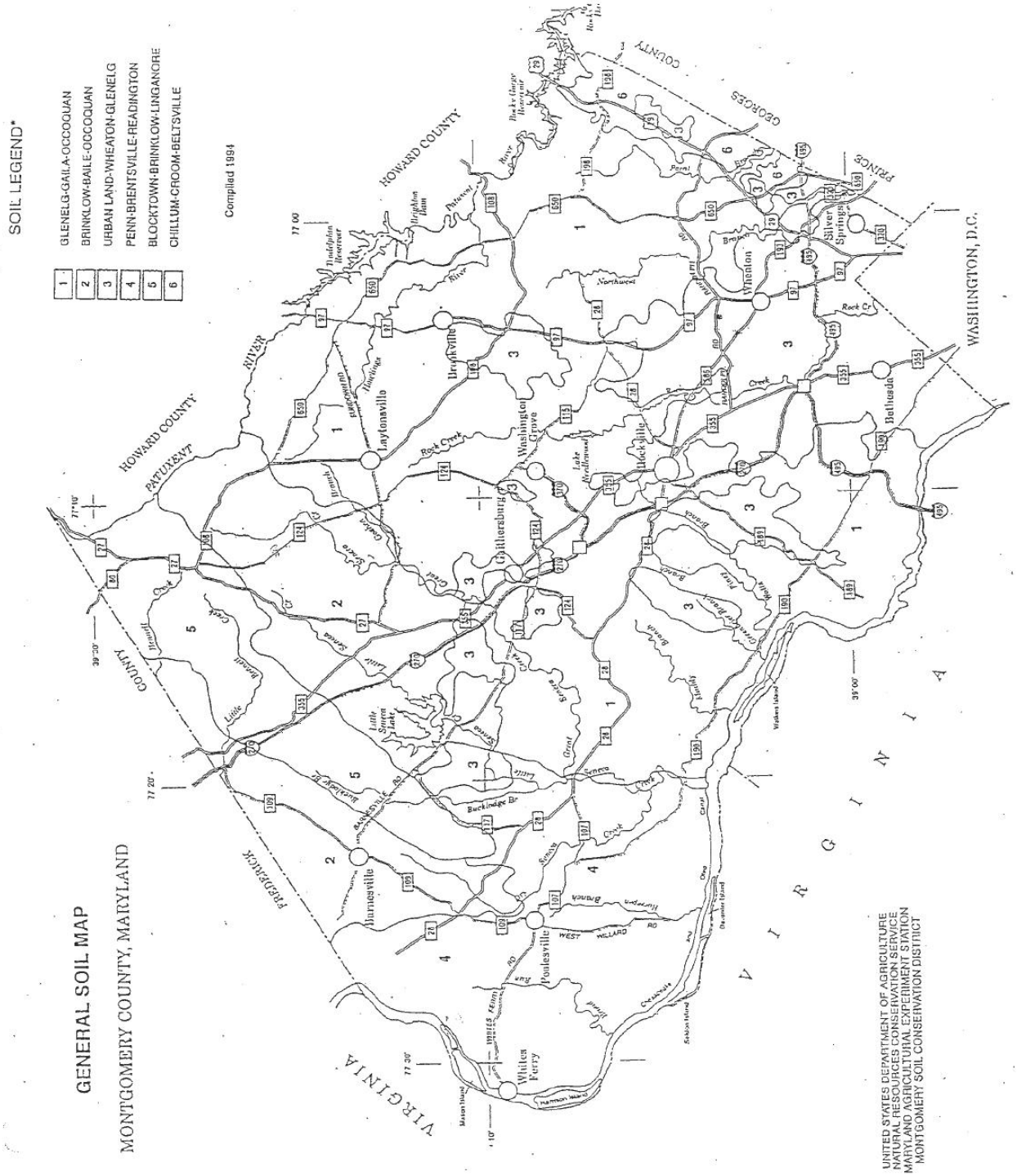


Figure 4.5

County General Soil Map



Fine-grained slaty rocks mapped as the Urbana (e.g., Harpers), Ijamsville, and Marburg phyllites occupy the Piedmont of Montgomery County west of a line running north-northeast from Blockhouse Point on the Potomac River to a point on the Patuxent River due north of Etchison, at Annapolis Rock. A large area in the western corner of the County is underlain by consolidated sedimentary rocks of Triassic age. This represents a small portion of the large Culpepper Basin in neighboring Virginia. Red Triassic sandstone was quarried for building stone at several places along the bluffs north of the Potomac River during the 19th century.

The general trend of the bedrock units across Montgomery County and the strike of the foliation and cleavage are northeast-southwest, but no one particular lithology appears to have had significant control on the topography.

Alluvial deposits consisting of gravel, sand, silt, and clay of recent age are present along the Potomac River, particularly in the wide bottomlands in the area of Triassic rocks west of Seneca. This alluvial fill is much less developed where the river channel has been cut into hard metamorphic rocks such as along the Potomac east of Seneca, along the Patuxent River, and in the larger streams tributary to these rivers.

A large remnant of a high-level gravel terrace lies on Triassic bedrock between Martinsburg Road and Elmer School Road in the western part of the County. These gravels are floodplain deposits of the Potomac River when it flowed at a higher level in the late Tertiary or early Quaternary time, before eroding to its present channel. Smaller patches of this same material occur to the south along the bluffs overlooking the floodplain of the Potomac River.

Figure 4.6

County Geologic Conditions Map

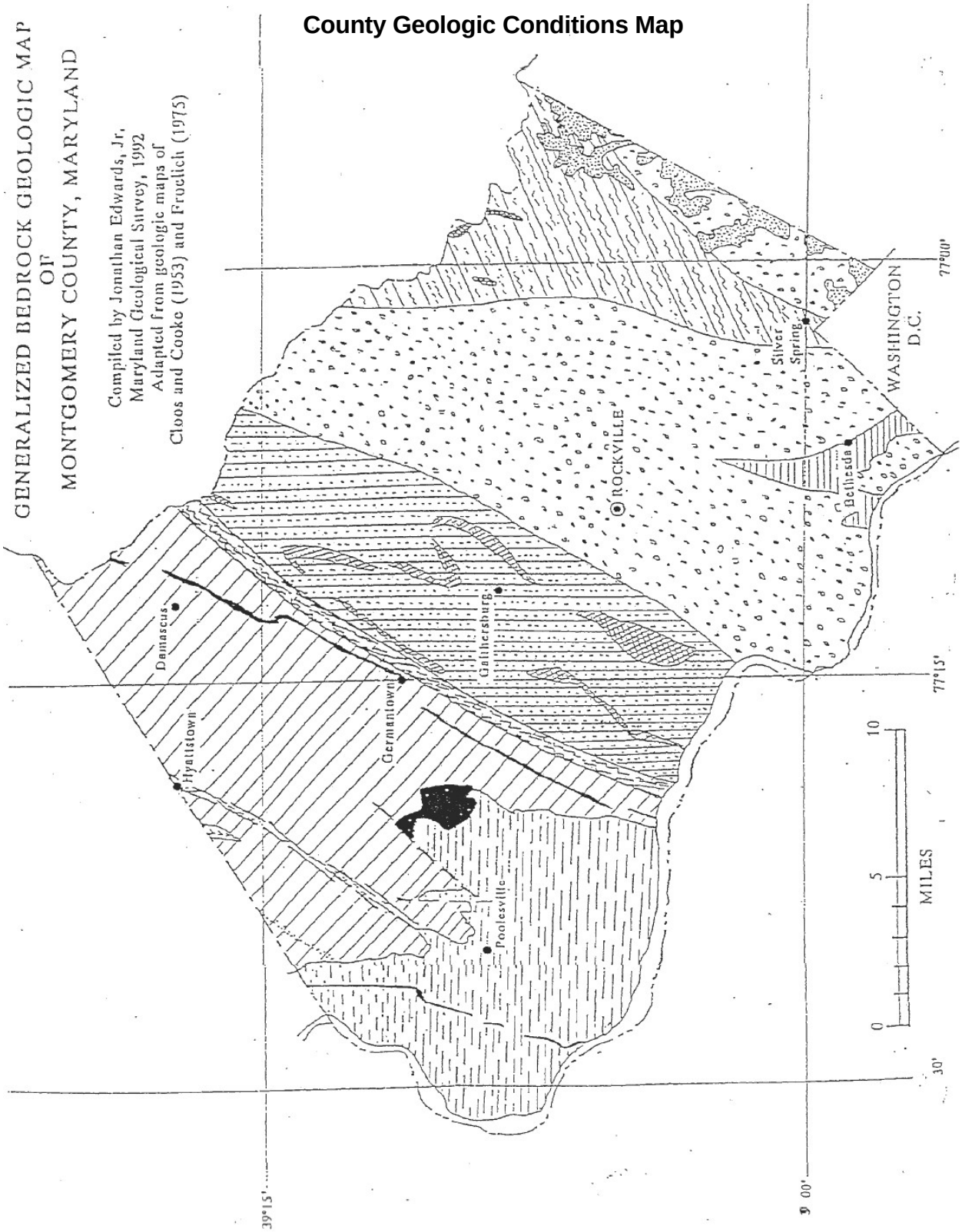


Figure 4.6 (con't)

EXPLANATION OF GEOLOGIC MAP

MESOZOIC

CRETACEOUS

Potomac Group: Unconsolidated deposits of quartz-pebble gravel; white, tan, and pink sand; and gray, white, tan, and pink clay of the Patuxent, Arundel, and Patapsco Formations

JURASSIC

Diabase Dikes and sills: Fine-grained, black basalt dikes and medium- to coarse-grained, black to dark greenish-gray diabase sill.

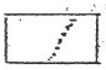
TRIASSIC

New Oxford Formation: Brick-red shale, siltstone, and red to gray sandstone. Cobble to pebble conglomerate at base.

EARLY PALEOZOIC

Pleasant Grove Formation: Fine-grained, dark greenish-gray metagraywacke and chlorite-muscovite-plagioclase-quartz phyllite*. Strongly sheared with tight internal isoclinal folds.

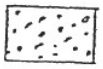
Marburg, Ijamsville, and Urbana, Formations: Fine-grained, greenish-gray, gray-tan, and purple-gray phyllite. Some phyllites are interlaminated with thin, tan, fine-grained silty quartz layers.



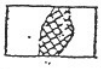
quartzite: Fine- to medium-grained, gray-tan to white quartzite with rounded grains of quartz. Some layers of pebble conglomerate occur.

Georgetown Mafic Complex: Medium- to coarse-grained, dark green metagabbro, black amphibolite, and gray metadiorite.

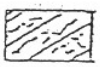
Wissahickon Group:



Sykesville Formation and Laurel Gneiss: Gray, medium- to coarse-grained plagioclase-muscovite-quartz gneiss containing deformed and metamorphosed pebbles and boulders of vein quartz, mica schist, granite gneiss, serpentinite, and amphibolite. Occurs with schist and metagraywacke identical to those of the western facies of the Wissahickon.



ultramafic and related rocks: Medium- to fine-grained, green to black chlorite-actinolite schist, chlorite-talc schist, and serpentinite.



Eastern schist facies: Medium- to coarse-grained, gray to brownish-gray, garnet-bearing biotite-plagioclase-muscovite-quartz schist interlayered with biotite-muscovite-quartz-plagioclase gneiss.

Western schist facies: Fine-grained greenish-gray to gray, chlorite-muscovite-quartz-plagioclase schist.

LATE PRECAMBRIAN

Metabasalt (Sams Creek Formation): Fine-grained, chlorite-epidote schist and medium- to coarse-grained plagioclase-actinolite diabase.

* Mineral constituents listed in order of increasing abundance.

(d) Ground water and Aquifers[5] -- The major hydrogeologic units in the County are shown in Figure 4.7. Most of the ground water in these units occurs in the soil and weathered surface mantle which have an average thickness of 20-50 feet. Other ground water occurs in cracks and pores of the underlying rock.

The average annual depth of the ground water table in Montgomery County varies considerably from place to place depending on the type of rock, and the topographic situation as well as the annual rainfall. At an observation well at Fairland, in the Wissahickon schist of the eastern part of the County, average annual depth to ground water is between 8 to 10 feet. The comparable depth at an observation well at Damascus in the Ijamsville phyllite and a more rugged topography is between 30-45 feet. In the Manassas (New Oxford) siltstones and sandstones, the water table, as shown in scattered wells, lies at about 70-120 feet. However, this formation contains thin, saturated zones five to ten feet thick at lesser depths from which small quantities of water can be obtained. It is noteworthy that water at significantly greater depths in the Manassas formation has been reported from a well adjacent to the Potomac River. In general, however, the water in the ground lies chiefly in a surface zone about 150-250 feet thick.

The U.S. EPA designated parts of Montgomery, Frederick, Howard, and Carroll Counties as the Maryland Piedmont Aquifer. Areas in Montgomery County encompassed in this designation include the following drainage basins: Monocacy River, Little Seneca Creek above its confluence with Great Seneca Creek, and the Patuxent River above its confluence with Cabin Branch Creek. Most of these basins are underlain by crystalline igneous and metamorphic rocks of the Piedmont, although small areas of Triassic sedimentary rocks are also included along the lower reach of Little Seneca Creek and near Dickerson.

5 Sources: 1986 Comprehensive Montgomery County Water Supply and Sewerage Systems Plan; U. S. EPA, FR57165-168 (1980), as per the Sole Source Aquifer Program, established under Section 1424(e) of the Safe Drinking Waster Act of 1974.

In February 1998, the U.S. EPA determined that the Poolesville Area Aquifer System “is the sole source or principal source of drinking water for this area and if the aquifer system were contaminated would create a significant hazard to public health.” The sole source designation subjects all federally assisted projects to EPA review to ensure that the project’s design, construction and operation will not contaminate the aquifer so as to create a significant hazard to public health.

(e) Wetlands -- Regulations regarding the definition of, and allowable impacts to, wetlands continue to evolve. Wetlands are defined by the Planning Board's guidelines of February 1997 for Environmental Management of Development in Montgomery County as "an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation."

Information on the location of major wetland areas in the County is available through National Fish and Wildlife Service maps. The County's Department of Parks and Planning requires more accurate delineations of wetlands by a developer's engineer during the development review process. This detailed delineation is also required by federal and state agencies as a part of their wetland permit review processes.

In 1989, the Maryland Department of Natural Resources (DNR) prepared Nontidal Wetland Guidance Maps that showed the relative locations of large nontidal wetlands in Montgomery County. However, as stated in the instructions for the use of these maps, exact wetland boundaries and locations must be field determined using guidance that is provided by the Federal Government. Any new solid waste facility must address current Federal and State wetlands requirements.

(f) Surface Waters, Floodplains and Watersheds -- The County's rivers, lakes, and streams provide drinking water, recreational opportunities, and wildlife habitat.

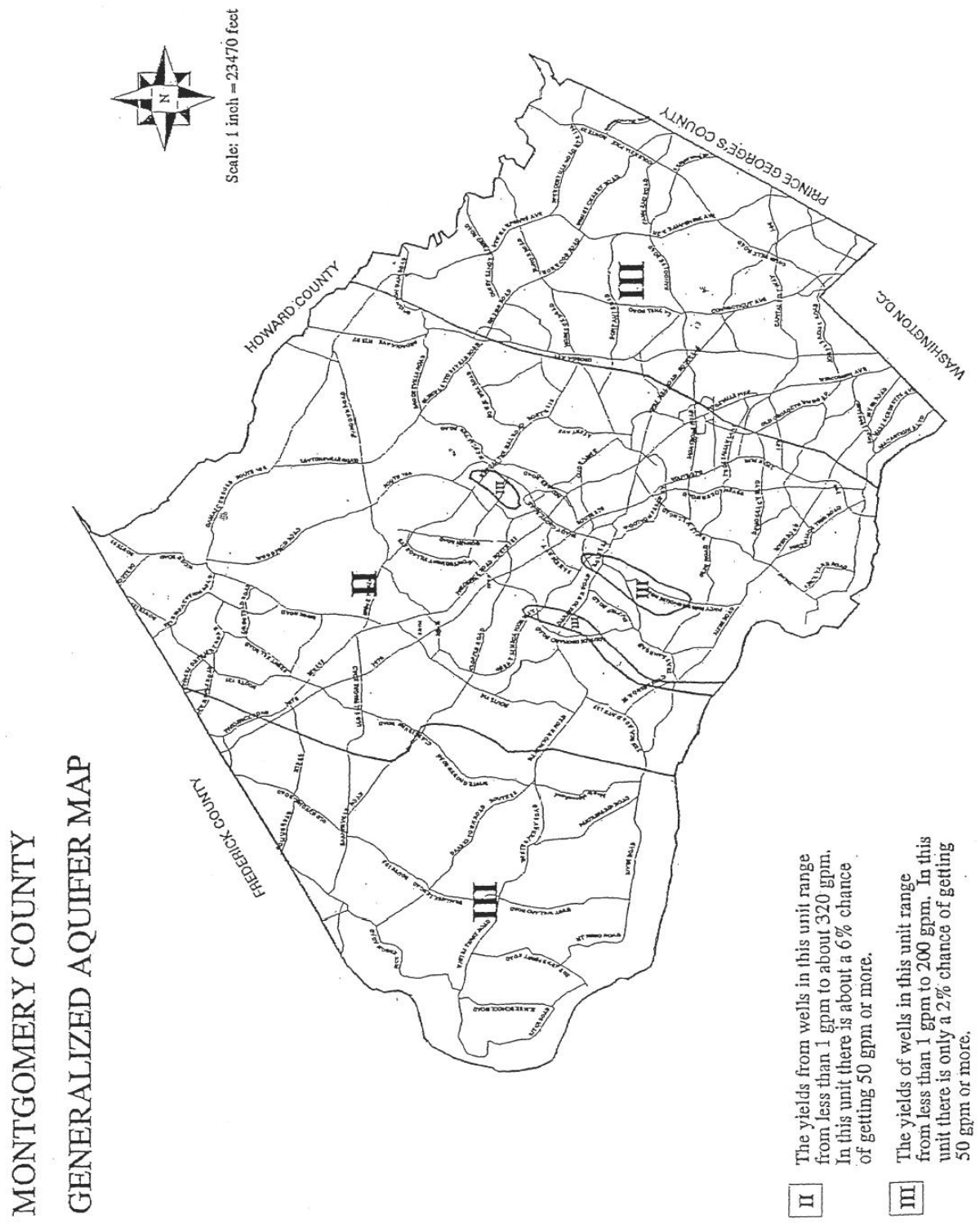
Most of this surface water comes from naturally occurring run-off from rain and snow. All of the lakes in the County are man-made. The larger lakes were built for flood and sediment control and water supply. Some County waters also are used to receive treated sewage and excess storm water run-off. Ultimately, all waterways flow into the Chesapeake Bay. The major surface drainage patterns are illustrated in Figure 4.8.

The County has 26 drainage basins, flowing into four rivers. The County is bordered by two rivers, the Potomac and the Patuxent. Seventy percent of the County drains directly into the Potomac River and its major tributaries. Twelve percent of the County drains to the Anacostia River and then to the Potomac River. Six percent of the County north of Comus Road and MD 121 (east of I-270) drain toward the Monocacy River and on to the Potomac River via Bennett and Little Bennett Creeks. The remaining twelve percent of the County along the Howard County line, northeast of Route 198 and New Hampshire Avenue, drains into the Patuxent River. The above-mentioned roads generally follow ridge lines.

Montgomery County Subdivision Regulations prohibit building in a one-hundred year flood plain, except for certain transportation structures. Flood plains comprise low lying areas expected to be inundated by floods recurring every 100 years. The Department of Parks and Planning has flood plain maps for most streams in the County. The Federal Emergency Management Agency also publishes maps of flood plain zones for the purposes of federal flood insurance programs. Flood plain location can affect the design of solid waste facilities. Engineering studies to identify the extent of flood plains have been performed for the RRF site and for the landfill property currently being held in reserve by the County.

Figure 4.7

County Hydrogeologic Units Map



(g) Existing Water Quality Designations --MDE water quality standards identify water use designations for all surface waters in the County. Specific water quality criteria apply to each use designation. The use designation of County surface waters are listed below and shown in Figure 4.9.

Use I	Water contact recreation and protection of aquatic life: Waters which are suitable for: water contact sports, play and leisure time activities where the human body may come in direct contact with the surface water; fishing; the growth and propagation of fish (other than trout); other aquatic life, and wildlife; agricultural water supply; and industrial water supply.
Use I-P	Water contact recreation, protection of aquatic life and public water supply: Waters which are suited for all uses identified in Use I and are used as a public water supply.
Use III	Natural trout waters: Waters which are suitable for the growth and propagation of trout, and which are capable of supporting self-sustaining trout populations and their associated food organisms.
Use III-P	Natural trout waters and public water supply: Waters which include all uses identified for Use III waters and are used as a public water supply.
Use IV	Recreational trout waters: Waters which are capable of holding or supporting adult trout for put and take fishing, and which are managed as a special fishery by periodic stocking and seasonal catching (cold or warm waters).

Use IV-P Recreational trout waters and public water supply: Waters which include all uses identified for Use IV waters and are used as a public water supply.

Needs Assessment and Plan Direction: Limited sites remain in the County with physical characteristics which are suitable for development of large new solid waste facilities, particularly landfills. As described in the next section, both the physical characteristics of the land and previous land development patterns have reduced the availability of in-county locations appropriate for siting large new solid waste facilities. As such, the County has and will consider both in-county and out-of-County alternatives to meet its long-term solid waste facility needs (see next section and Chapter 5).

Figure 4.8

Surface Drainage Patterns Map

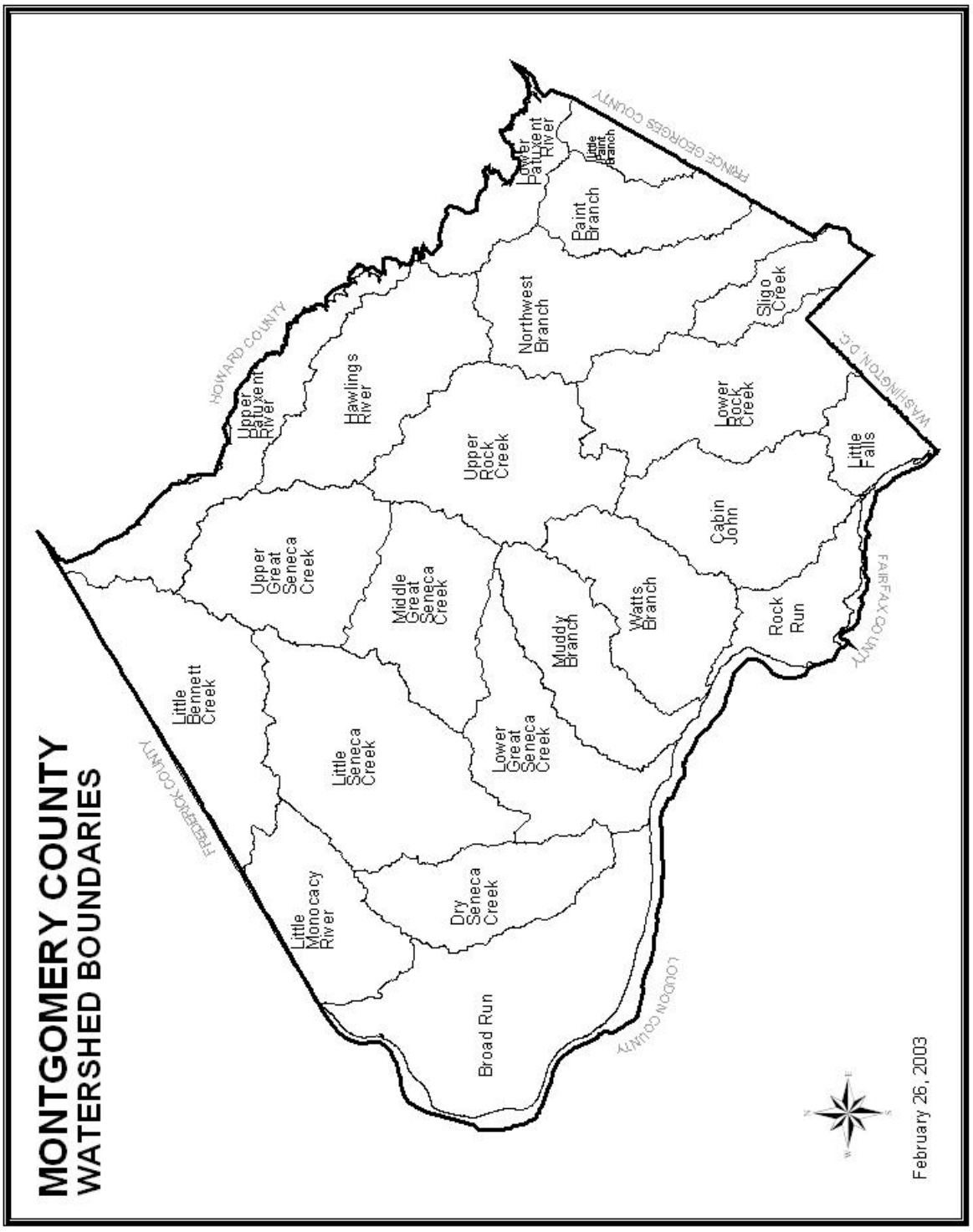
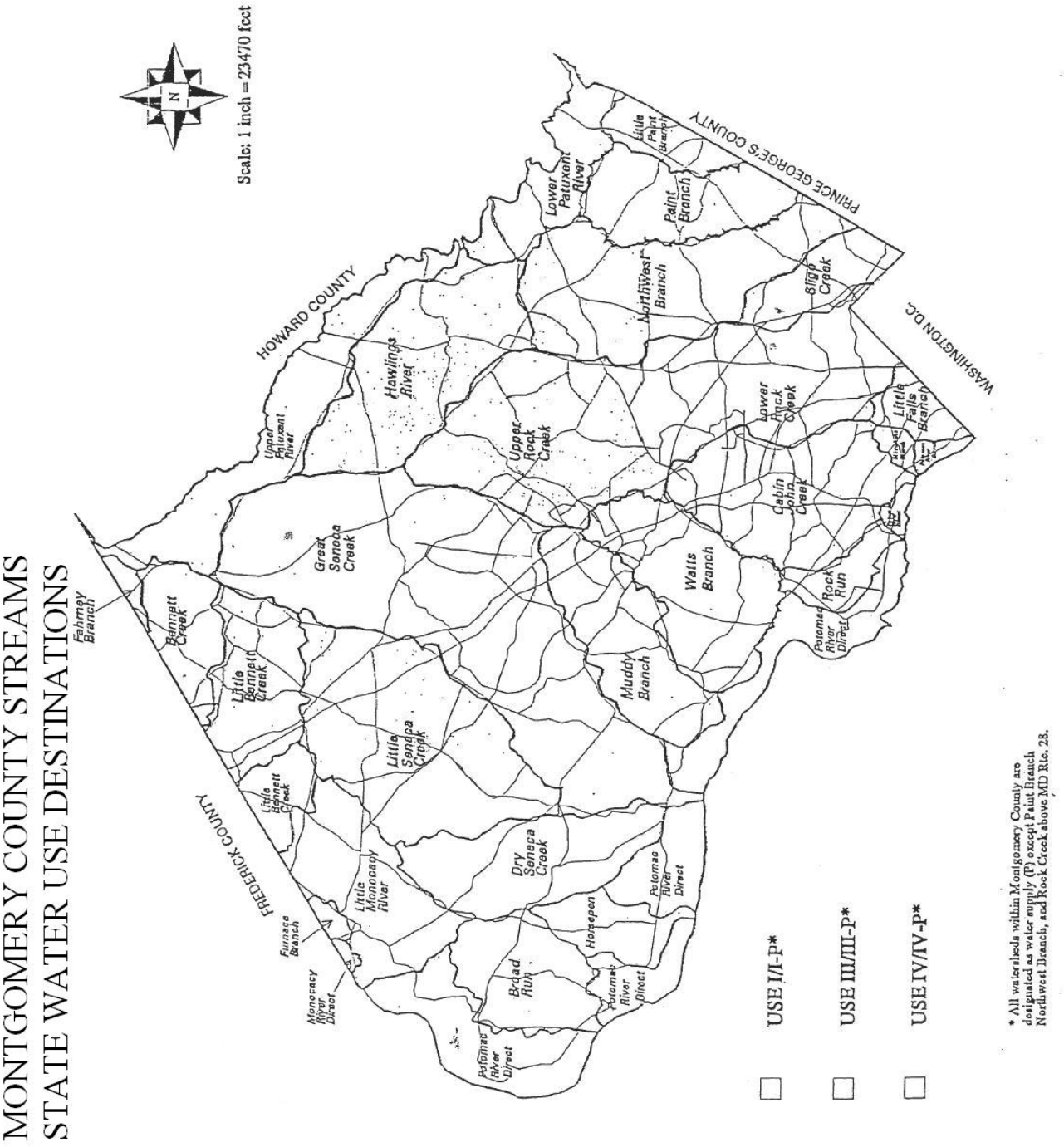


Figure 4.9

County Surface Water Use Designations Map



4.3.2 Land Use Constraints

Current Conditions and Constraints: The County regulates the siting of solid waste facilities through provisions of this Plan, the County Code (primarily Chapter 48), and the Zoning Ordinance.

The County Zoning Ordinance includes standards for solid waste facilities. The Zoning Ordinance restricts privately owned transfer stations, landfills, incinerators and recycling facilities to select industrial zones. The County Zoning Ordinance expressly prohibits privately owned and operated incinerators in industrial zones.[6] Privately owned incinerators are allowed in industrial zones only if publicly operated.

The Zoning Ordinance limits privately owned transfer stations, landfills and incinerators to the I-2 heavy industrial zone. Moreover, these facilities are permitted in the I-2 zone only if the County Board of Appeals grants a special exception determining that the specific I-2 parcel is suitable for a transfer station, landfill or incinerator. At present, no privately owned MSW transfer station, landfill or incinerator has satisfied both local land use requirements and MDE solid waste disposal facility permitting requirements. The County historically has reserved relatively small amounts of land for industrial uses. No more than seven vacant or re-developable (i.e., parcels where the value of the land exceeds the value of existing improvements) I-2 parcels of five acres or more exist in the County. The creation of new I-2 land seems unlikely during the life of this Plan given existing land use patterns as well as County and State land development policies.

The Zoning Ordinance allows a construction debris recycling facility in a Rural Service Zone provided that the facility meets special development standards set forth in Section 59-C-9.83 of the County Zoning Ordinance. These requirements set minimum standards for lot size, road frontage, distance to an interstate interchange, building set

back, and on-site screening and landscaping. The facility also requires a construction debris recycling permit that satisfies the materials handling and reporting requirements of Section 59-C-9.84 of the County Zoning Ordinance.

Most of the southern and central portions of the County are unavailable for solid waste management uses given existing development and land use patterns. Extensive areas throughout the County, primarily along rivers and streams, are dedicated for parks and conservation purposes. A large portion of the northern land area of the County is designated as an Agricultural Reserve which is intended for the preservation of farmland and open spaces. The County Yard Trim Composting Facility, the RRF, as well as the land reserved for a potential future in-county landfill, are located within the Agricultural Reserve and in an area identified by the EPA as a Sole Source Aquifer (SSA) system. This designation requires that federally assisted projects in this area are subject to EPA review to ensure that the project's design, construction and operation will not contaminate the aquifer so as to create a significant hazard to public health. Although this would not apply to a County financed project, these solid waste processing facilities must comply with State design and permit requirements that provide a high standard of environmental and public health protection.

A 1990 County study evaluated 16 in-county candidate landfill sites using 26 criteria adopted by the County Council in Resolution 11-787. County Council Resolution 11-1947 (1990) identified two potential future in-county landfill sites, "Site 2" in the vicinity of Dickerson, and another site in the vicinity of Boyds, both in the Agricultural Reserve. The County purchased 820 acres at Site 2 which will be held in reserve in the event economic conditions, changes in law or other circumstances render out-of-County waste disposal infeasible.

The County does not intend to site any new major solid waste processing facilities within the County during the next ten years. The sites for currently operating solid waste

6 See Section 59-C-5.22 of the County Zoning Ordinance.

processing facilities as well as land reserved for potential future solid waste facility needs have been selected in the context of County land use master plans as discussed in Chapter 2 of this Plan. While only a few parcels of land use remain undeveloped in the County that are zoned to permit private solid waste processing facilities, existing solid waste processing facilities are adequate to handle projected waste generation for the next decade and beyond. Recent modifications to the County zoning ordinance will promote the suitable siting of new private recycling facilities in the County.

Needs Assessment and Plan Direction: The County's principal solid waste management facilities, including the RRF, the Yard Trim Compost Facility, the Shady Grove Processing Facility and Transfer Station and the MRF, have expected useful lives beyond the term of this Plan. The above land use constraints do not bear on the landfill used by the County, via contract, as it is located outside of the County. However, that facility has capacity has more than sufficient useful life for the planning period (see section 5.2.1.5.) as does the County's Site 2 back-up in-County landfill. Construction is currently underway on landfill gas-to-energy projects at both the Gude and Oaks closed landfills in the County. These gas-to-energy projects will be operational in 2009. The County is currently performing design work toward relocating its yard trim/wood waste operations away from the Transfer Station site to the closed Gude Landfill. Capital improvements to the Transfer Station were constructed in 2007 to enhance both facility safety and customer service. These capital improvements included the addition of two new truck scales to reduce waiting times, an addition to the transfer building, upgrades to the scale house, an additional citizen unloading bay, and road improvements. The final decisions on site improvements being designed for relocation of yard waste operations from the Transfer Station to an area at the Gude landfill will be made during subsequent CIP review of that design.

4.4 SOLID WASTE OUTREACH, EDUCATION AND PROMOTION

Education and promotion programs have become an essential component of the County's integrated solid waste management system. The County government has devoted considerable resources to solid waste education and outreach programs. Montgomery County residents and businesses receive information about their role in reducing waste, recycling, and using their purchasing power to support demand for recycled materials and products.

4.4.1 Public Outreach and Consumer Education

Current Conditions and Constraints: Montgomery County has conducted public information and outreach activities for many solid waste programs. The County has pursued an ongoing educational campaign to inform residents and businesses about recycling, waste reduction, and other solid waste management concerns. These efforts include the following subject matter:

- Residential curbside recycling;
- Multi-family recycling;
- Non-residential recycling (by businesses, organizations, both for-profit and non-profit, and government facilities);
- Yard trim composting and grasscycling;
- Waste reduction;
- Reuse, including donation programs;

- Consumer and business purchase of recycled/recyclable products; and

- HHW reduction and proper disposal.

Outreach activities employ a variety of information dissemination techniques designed to deliver the message in a cost effective and appropriate, productive manner. Information and education efforts employ the following techniques:

- Tours of solid waste facilities including, the Transfer Station, MRF, Yard Trim Composting Facility, and RRF;

- Brochures and fact sheets specific to various programs (including commercial recycling, multi-family recycling, curbside recycling, special materials drop-offs, and HHW);

- A comprehensive Resident's Guide for recycling and solid waste services distributed to single-family residents;

- Development and distribution of specialized handbooks and resource guides (including the Business Recycling Handbook, the Multi-Family Recycling Handbook and the Handbook for Businesses Generating Small Quantities of Hazardous Waste);

- Video presentations regarding business recycling, residential recycling, recycling in schools, multi-family recycling, waste reduction, buying recycled products and backyard composting;

- Cable television programs featuring current topics in solid waste management;

- Targeted direct mail campaigns;
- Multi-media educational campaigns to increase recycling awareness;
- Presentations to civic groups, schools, chambers of commerce, business associations and at special events;
- Outreach through the Solid Waste Services website;
- Training of volunteers to provide peer recycling outreach to citizen groups;
- Educational materials and offerings in multiple languages, and utilizing graphics and illustrations to the maximum extent possible;
- Seminars and workshops on varied topics (including business recycling regulations and backyard composting techniques); and
- Incentives, including discount or free compost bins and lawn care products, to promote grasscycling and backyard composting.

On-going outreach activities include the Recycling Volunteer Program, the SORRT Program, the TRRAC Program, efforts to educate grasscycling and composting on-site, and a program to teach waste reduction and recycling in the County Public Schools.

Recycling Volunteer Program: This program is intended to increase citizen knowledge of, and participation in, County recycling, composting, grasscycling, waste reduction and HHW programs through effective use of community volunteers.

The County trains volunteer members of the community to perform several functions, including: (1) giving speeches and making presentations to civic associations, service clubs, and other organizations requesting information regarding the County's solid programs; (2) providing neighborhood-based waste reduction, recycling and buying recycled products information to peers; and (3) staffing recycling booths and exhibits at special events, such as the County Fair.

Recycling volunteers augment County resources through grass roots efforts to increase participation in the County's waste reduction and recycling programs. From its inception the Recycler/Composter citizen volunteers have contributed tens of thousands of hours of service and directly reached hundreds of thousands of people. The hours served by volunteers from 2005 are listed below.

FY Year	Hours Served by Volunteers
FY 2005	670
FY 2006	1,030
FY 2007	1,660

SORRT: The SORRT Program (Smart Organizations Reduce and Recycle Tons) serves as an information network that promotes and supports business recycling. Through SORRT, the County provides businesses, government agencies and private institutions with technical support, education materials, seminars and workshops and other guidance to advance waste reduction, recycling and procurement of recycling materials and products in the non-residential sector.

The SORRT Program reaches thousands of County businesses and organizations annually. A 1997 study determined that the average business or organization which directly received technical assistance through the SORRT program increased its recycling by 82 tons per year over the level achieved prior to their participation in SORRT.

TRRAC: The TRRAC Program (Think Reduce and Recycle at Apartments and Condominiums) serves as an information network that promotes and supports recycling in multi-family apartment and condominium developments. Through TRRAC, the County provides building owners, managers and residents with technical support, education materials, seminars and workshops and other guidance to advance waste reduction, recycling and procurement of recycling materials and products in multi-family residential buildings.

Waste Reduction and Recycling Education in Public Schools: DEP provides waste reduction and recycling outreach and education upon request by specific schools or teachers. In addition, DEP will support individual teachers who request assistance in developing, reviewing, updating or using instructional materials on waste reduction and recycling. As mentioned in Chapter 1, the County expects all public agencies including the public school system to comply with all waste reduction and recycling requirements imposed on County businesses.

The Department will appraise the effectiveness of alternative education and outreach strategies and will focus its efforts on initiatives quantifiably demonstrated to have measurable positive effect on recycling performance. The Executive's annual operating budget submission must include summary findings of participation studies, focus groups, surveys and other research used to evaluate the effectiveness of alternative techniques and must describe how these findings justify the specific outreach, education, and technical assistance proposed for funding in the upcoming fiscal year.

Needs Assessment and Plan Direction: As indicated in Chapter 3, the County recycled over 43 percent of its MSW stream in FY07, continuing a steady clime. This rate has been achieved by creating recycling programs and by encouraging residents and employees to participate in the programs. The County recognizes that on-going outreach and education efforts are a critical element in both maintaining and expanding recycling

and waste reduction achievements. Public outreach and education will play a central role in County strategies to meet its goal of 50 percent recycling (see Chapter 5).

4.4.2 Recycled Goods Procurement

Current Conditions and Constraints: Section 11B-56 of the Montgomery County Code includes the County goal that recycled paper and paper products should constitute at least 50 percent of the total dollar value of paper and paper products purchased by or for the County government. The same section of the County Code also mandates that County agencies either require the use of goods containing recycled materials or use of a percentage price preference (up to 10 percent) for recycled materials when purchasing goods. The Office of Procurement reviews all purchasing agreements to ensure compliance with the requirements of the County Code. DEP distributes information on the availability of products containing recycled materials to County businesses and municipalities to encourage them to use these materials.

Needs Assessment and Plan Direction: The Office of Procurement and DEP will take all practicable efforts to promote maximum use of recycled materials by County agencies.

4.4.3 Promotion of Recovered Material Markets

Current Conditions and Constraints: County procurement regulations requiring the use of materials containing recycled materials promote the development of the recycled products market. Furthermore, the SORRT and TRRAC Programs promote recycling market development by encouraging County businesses and organizations to purchase recycled materials and products. County consumer education and outreach campaigns endorse “environmental shopping,” including the purchase of products with recycled content.

Contractual arrangements between the County and those entities which market County collected recyclables provide incentives for the vendor to obtain the best market price and to minimize the amount of residue (non-marketable) material generated.

The County RRF produces ash equal to approximately 25 to 30 percent (by weight) of the inputted solid waste. Reuse of ash for secondary purposes is a developing technology.

Needs Assessment and Plan Direction: The County will continue to promote the development of markets for recyclable materials through County procurement requirements, and outreach efforts to the residential and business communities.

The County will continue to manage its recycling contract to maximize materials recovery. The County will evaluate the feasibility and cost effectiveness of the reuse of RRF ash in road aggregate, construction materials and other specialized products.

4.5 INVESTIGATION OF COMPLIANCE ISSUES AND ENFORCEMENT OF RECYCLING REGULATIONS

Montgomery County Executive Regulation 15-04AM mandates recycling in Montgomery County. The goal of the County is for compliance with the recycling requirements. In order to ensure compliance with the County's recycling regulation by the multi-family and non-residential sectors, DSWS has dedicated staff (Recycling Investigators) responsible for investigating and applying enforcement measures as necessary and appropriate to enforce the County's recycling laws.

DSWS uses a progressive method of ensuring compliance with the recycling regulation. This process begins with DSWS outreach and education to ensure awareness and understanding of the requirements. DSWS uses technical assistance, training and hands-on guidance, and further provides tailored and specific recommendations on how a

multi-family (apartment and condominium) property or a business can set-up, maintain and expand their recycling program in compliance with the regulation. In instances where these techniques do not bring about compliance by a multi-family property or business, DSWS has the authority, ability and responsibility to use stronger means of enforcement to bring about compliance. Again, there is a progression of methods used, beginning with verbal warnings, notices of violation, and citations (which include levying of fines).

4.6 SYSTEM APPROACH TO GREENHOUSE AND OZONE-RELATED EMISSIONS

Montgomery County is dedicated to the goal of providing healthy and sustainable communities, and solid waste management plays a part.

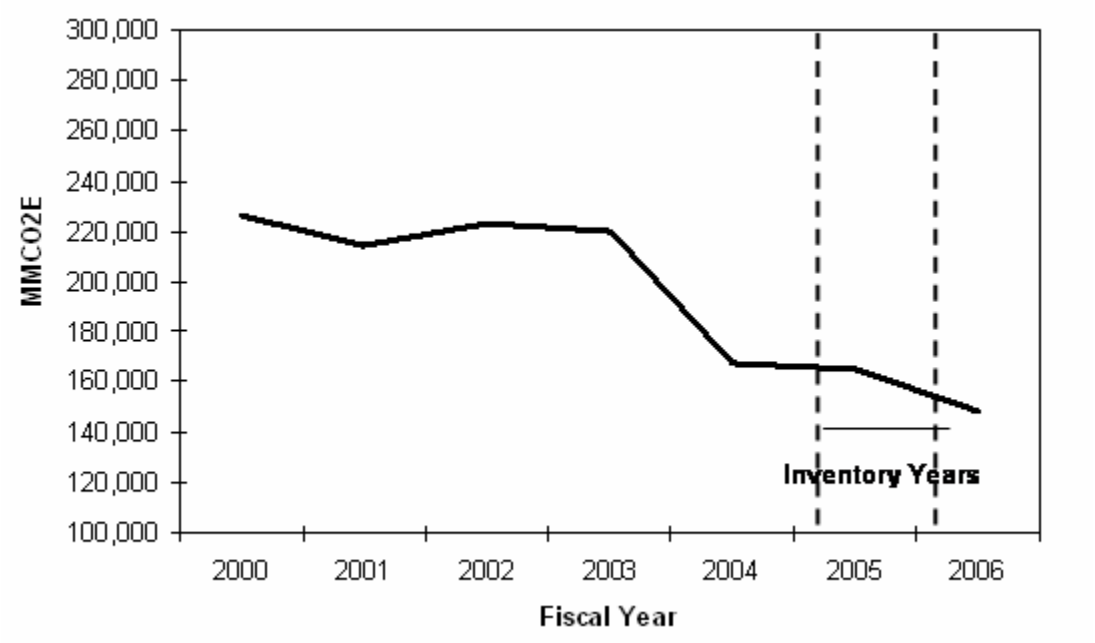
4.6.1 Greenhouse Gas (GHG) Emissions

A scientific consensus has arisen that carbon dioxide (CO_2) and other greenhouse gases (GHG) released into the atmosphere will have a profound effect on the Earth's climate. From that growing understanding, and a sense of responsibility do what it can in the fight to manage global warming, Montgomery County has aspired to a leadership position since 1999 when the County first became a member of the International Council for Local Environmental Initiatives, Cities for Climate Protection Campaign (CCP). Most recently Montgomery County has reaffirmed its commitments via the Cool Counties – Climate Stabilization Declaration. This pivotal Declaration signed by 36 leading Counties committed Montgomery County to 80 percent reductions in GHG emissions by 2050 with aggressive interim goals of 10 percent reductions every five years, this initiative was further formalized by Council Bill 32-07 which created a Sustainability Working Group to develop a detailed climate action plan.

Current Conditions and Constraints: DEP's Climate Action Team has already taken the first steps in reviewing local greenhouse gas emissions, and has estimated, as shown in Figure 4-10, below, that waste management activities contribute approximately 165,166 million tonne CO_2-equivalent net GHG emissions for baseline year 2005. DEP further estimates that this amount represents approximately one to two percent of countywide GHG emissions. In reality, the actual emissions from this sector may be significantly less, or even negative, due to the County's robust recycling and waste management efforts and the difficulty in evaluating the upstream GHG reductions from this important resource recovery.

Figure 4.10

Net GHG Emissions ($MMTCO_2$-e) from Solid Waste Management in the County



One constraint on the task of making such evaluations is that the computer models and protocols available for complex functions such as waste management are in a state of flux. For example, the current model provided by International Council for Local Environmental (ICLEI), of which the County is a member, employs embedded coefficients and algorithms that are subject to updates from time to time as knowledge improves. A

full update to the ICLEI model is not expected for at least another six months. Thus, the results, at least at the current time, need to be treated with some forbearance, and largely as a measure of relative emissions and not absolute emissions. A second constraint, at least with respect to the ICLEI model licensed to DEP, is that the scope of activities which the model recognizes within its "waste management" sector, while holistic in many respects, does not include the activity of waste collection, nor any aspect of the intra-facility vehicular transportation (rail and truck hauling), or upstream benefits from the recovery of materials via recycling which considerable activity is intrinsic to Montgomery County's solid waste management system. Emissions from these activities are understood to be implicitly estimated by the model but reported out within other large sectors of the ICLEI model (e.g. "community" or "transportation") and cannot be isolated for recognition as part of waste management. A third and related constraint may be the relative unavailability of data needed to assess emissions from private waste collection vehicles and activities, as compared to that associated with County contract vehicles and activities for which information may be more readily available. As the ICLEI model is improved, or superseded by other protocols and tools, these estimates may change, however any changes will need to be reconciled back to the baseline year of 2005.

Needs Assessment and Plan Direction: Montgomery County's solid waste management system is comprised of a great variety of inter-related activities. In addition to that which the County's ICLEI model recognizes, a system-wide GHG emission inventory of Montgomery County solid waste management will need to account specifically for net emissions from: waste collection activities, the intra-facility vehicular transportation (e.g. rail and truck hauling), and other emissions intrinsic to the scope of Montgomery County's integrated solid waste management. Such an accounting will be designed to complement the County's ongoing ICLEI-based GHG inventory and modeling efforts. Such solid waste system-wide inventory will aid in assessing any significant net GHG impacts of future changes in the solid waste management system. Special efforts may be needed to gather data related to private sector waste collection.

4.6.2 Ozone-Related Emissions

Montgomery County is located in a non-attainment area with respect to National Ambient Air Quality Standards (e.g. for 8-hour ground level ozone). As has been noted, the County's solid waste management system is comprised of many and various interrelated components. Collection trucks, intra-facility transfer trucks and trains, facility processes, equipment and intra-facility rolling stock, etc. — all contribute to ozone-related emissions (e.g. nitrogen oxides and volatile organic carbon). Reducing these emissions can contribute toward attaining a healthier community.

Current Conditions and Constraints: Any combustion process produces nitrogen oxides (NOx). This includes vehicles with internal combustion engines and any power generation based on combustion. Possibly the largest single source of NOx within the County solid waste system is the County's RRF, which typically emits a little over 1,000 tons per year of NOx. The County is currently pursuing a capital improvement program at the RRF expected to substantially reduce NOx emissions. As noted above, the County's solid waste management system is comprised of many and various interrelated components. Many other components involve combustion, with attendant NOx emissions, and also some significant sources of VOC emissions.

Needs Assessment and Plan Direction: In order to identify additional opportunities to assist with ozone-related emission reductions, the County should develop a solid waste system-wide emission generation inventory tool. Such a tool could be used to aid in evaluating impacts of future changes in the solid waste management system and public outreach.

Chapter 5: Solid Waste Management System Plan of Action

This Solid Waste Management Plan is a planning document for the County government. The Plan is a dynamic document that may be amended by the County government if and whenever the County finds it necessary or appropriate. The County will review and, if necessary, update the Solid Waste Management Plan at least once every three years in accordance with a schedule established by MDE. The scope and content of the Plan is written in accordance with the requirements in COMAR 26.03.03.

The preceding chapters include the best available estimates of the amount and kind of solid waste produced, the amount and kind of solid waste expected to require management during the planning period, and the constraints which are imposed on the site selection, construction and operation of solid waste management facilities.

This Chapter presents an abstract of the pertinent County policies and actions taken in response to its responsibilities.

This Chapter is organized into the following major subsections:

5.1 General
5.2 The Solid Waste Management System
5.3 Adequacy of Existing System to Handle Waste Streams
5.4 System Financing

5.1 GENERAL

5.1.1 Definitions

A number of terms and acronyms, as defined in Appendix A, are used in connection with the County's solid waste management system. For the purposes of

this Plan, these terms and acronyms shall have the meanings ascribed to them in Appendix A.

5.1.2 General Solid Waste Policies

Detailed policies and plans of action describing the County's strategies for managing each solid waste facility and program appear later in this Chapter. The following statements reflect the general solid waste policies of the County:

5.1.2.1 General Solid Waste Management Policy

a. The County's solid waste management preferences and practices shall be guided by the principles of sustainability. That is, actions taken today should be those judged least likely to make life more difficult for future generations. In keeping with this principle, waste reduction is the most preferred solid waste management technique, followed by reuse and recycling, then controlled combustion with energy recovery, and least preferred, landfilling. This general hierarchical policy has the following specific elements:

(1) The County, within its practical scope and range of effectiveness, should undertake to effect all waste reduction measures feasible.

(2) All waste reuse and recycling measures should be implemented which are practical with available technologies and reliable markets and that are not significantly more expensive in the framework of sustainability than the waste disposal measures that would otherwise be needed. Changing technologies, markets, and sustainability considerations should be reviewed regularly so that waste reuse and recycling may be expanded as new opportunities arise or, contracted if markets for particular materials disappear.

(3) For MSW remaining after reduction, reuse and recycling, the County will operate a waste-to-energy Resource Recovery Facility (RRF) to recover renewable energy and minimize the volume of material that must be landfilled.

(4) Landfilling is the least preferred disposal method for RRF ash, bypass waste, and nonprocessible waste that cannot be recycled or reused. "Bypass" is waste received by the County which is processible at the RRF, but which is not processed at the RRF and instead sent by the County to its out-of-County landfill. In-county landfilling will occur only in the event that economic conditions or changes in the law render out-of-County solid waste disposal infeasible.

b. County solid waste acceptance and disposal facilities are designed based upon projections of solid waste generated in the County. To conserve capacity at the RRF and at other solid waste acceptance and disposal facilities for the residents and businesses of the County, the use of these facilities is restricted to solid waste generated in the County. This restriction does not apply to private processing facilities in the County including Office Paper Systems (OPS). OPS operates a paper recycling facility in the County and processes all mixed paper received at the MRF. OPS also processes mixed paper from commercial sources in and outside of the County. As a result, the County processes incidental amounts of non-recyclable out-of-County residues from OPS and other private facilities. The processing of these residues is not intended to impair the County's policy of reserving capacity at the RRF and other solid waste facilities for solid waste generated in the County.

In order to maximize the reach and effectiveness of the County's recycling program, any contract provision allowing the County to contract with other jurisdictions to receive their mixed paper must only be implemented after all reasonable efforts to maximize the County's mixed paper tonnage have been

exhausted. These efforts include maximizing the recycling programs of all County agencies as well as strengthening the County's commercial mixed paper program. In addition, the Council must approve any contract between the County and any other jurisdiction. This approval process includes an advertised public hearing.

c. The County builds and maintains solid waste acceptance and disposal facilities primarily to accommodate municipal solid waste generated in the County. The County facilities may not necessarily accommodate other types of waste.

5.1.2.2 General Refuse Collection Policy

The entire County is a collection and disposal district as authorized by Montgomery County Code Sections 48-8 and 48-29. The County must provide solid waste disposal and management services to all single-family residences in the entire district (see Section 3.2.2 of this Plan for details).

5.1.2.3 Facilities Siting and Community Impact

Montgomery County has identified sites for all major public facilities needed to accommodate projected municipal solid waste generation within the ten-year scope of this Plan (see Figure 3.3). It is the objective of the County to minimize the impact of solid waste management facilities on the environment, on residents, and on any one area of Montgomery County.

Whenever possible, traffic flow patterns of publicly contracted or commercial vehicles engaged in the collection of solid waste and associated transfer to solid waste facilities are adjusted in order to avoid conflicts with school bus schedules and to ensure traffic safety for both school-related traffic and that of other institutions. Rail transfer of MSW from the County Shady Grove Processing Facility and Transfer

Station to the RRF is used to reduce the vehicular traffic impact of these solid waste facilities. Rail is the preferred mode of solid waste transfer whenever economically and operationally feasible.

The County provides environmental control measures to protect air quality and prevent water supply contamination in the vicinity of solid waste facilities.

5.1.2.4 Biosolids Management

It is the policy of the County to promote the beneficial use of biosolids as defined by the U. S. EPA. The County promotes the recycling of the nutrients and organic material present in biosolids to benefit the growth of crops and improve soils. Processes presently employed such as beneficial land application and composting support the beneficial uses of biosolids. Landfilling and incineration are not the preferred means of biosolids management, as those techniques preclude the beneficial use of the nutrients and organic material in biosolids. As a matter of policy, the County will not incinerate biosolids at the RRF.

5.1.2.5 Hazardous Wastes

Regulation of the transportation, treatment, storage and disposal of hazardous wastes is the responsibility of the State of Maryland. As a matter of policy, through the County Zoning Ordinance, the County does not permit hazardous waste disposal facilities within the County. The County will provide the means for the environmentally responsible receipt and disposal of household and commercial small quantity generators of hazardous wastes.

5.1.3 Administration of the Plan

5.1.3.1 Implementation

Under the direction of the County Executive, this Plan is developed and administered by the Director of DEP. Within DEP, DSWS provides staff support to the Director and:

a. Formulates and recommends to the County Executive the County Solid Waste Management Plan, revisions of the Plan, and such other revisions or amendments to the Plan as may, from time-to-time, be appropriate.

b. Coordinates public participation in solid waste management planning.

c. Coordinates and recommends to the County Executive operating budgets and capital improvements to implement this plan.

d. Monitors technical developments and innovations in solid waste management.

e. Analyzes, reviews, identifies potential sites for solid waste management facilities and prepares and submits requests for appropriate permits, permit updates, revisions and modifications.

f. Reviews and comments on State solid waste refuse disposal permit applications, modifications, revisions and amendments for solid waste facilities.

g. Causes facilities and systems to be designed, constructed and placed in operation as these relate to solid waste management to implement the Plan, including the provision of appropriate investigations and studies, the development of

contracts, the selection and supervision of contractors in accordance with appropriate State permits.

5.1.3.2 Coordination

a. M-NCPPC provides requested information regarding population, growth forecasts, planning factors and other developmental criteria specified by the County Council or County Executive.

b. MDE regulates County solid waste management practices and issues permits for the construction and operation of County solid waste management facilities.

c. WSSC provides requested information regarding engineering, design, present and future capacities and fiscal elements of biosolids management facilities and programs.

d. Title 26.03.03.02B of COMAR provides that the Plan include all, or part of the subsidiary plans of the towns, municipal corporations, sanitary districts, privately owned facilities and local, State and Federal agencies having existing, planned or programmed development with the County to the extent that these inclusions shall promote public health, safety and welfare." No subsidiary solid waste management plans have been approved by the County for inclusion in this Plan.

5.1.3.3 Planning

Solid waste management planning is an ongoing activity conducted by DEP. The plan of action contained in this Chapter reflects the County's assessment of needs to manage solid waste systems during the next ten years. As conditions

change, the County Executive and the County Council may alter, extend, or modify this Plan of action accordingly.

5.1.3.4 Public Participation

DEP coordinates public participation in solid waste management planning and provides administrative support and information to SWAC, DAFIG and other solid waste advisory committees created by the County Council, or by the County Executive.

a. Solid Waste Advisory Committee -- SWAC is a legislatively created citizen advisory and oversight committee that consists of 15 members appointed by the County Executive and approved by the County Council. SWAC members serve three-year terms. The committee is advisory to the County Council and the County Executive on all matters relating to solid waste management within the County. Chapter 48, Sections 38-40 of the Montgomery County Code specifies the organization, membership, and activities of the committee.

b. Dickerson Area Facilities Implementation Group -- DAFIG is a legislatively created citizen advisory group consisting of 12 voting members appointed by the County Executive and approved by the County Council (see Council Resolution 13-1498 in Appendix E). DAFIG advises the County on issues of concern to the community that is affected by County solid waste operations in the Dickerson area. The facilities under the purview of the DAFIG include the RRF, the Yard Trim Composting Facility, properties originally purchased for the Site 2 Landfill, and properties associated with the original Matthews Farm. It is intended that the DAFIG will function in an advisory capacity to the County for the life of the facilities at Dickerson.

c. Ad Hoc Committees -- From time to time, the County Executive appoints ad hoc committees for the purpose of addressing special problems related to solid waste. Such committees serve at the pleasure of the County Executive. These committees are established to represent special community interests as the need arises.

d. Public Hearings -- The County Council holds a public hearing on the proposed Comprehensive Solid Waste Management Plan and any revision thereof. At least ten days notice of the hearing is given by publication in a newspaper or newspapers of general circulation in Montgomery County.

e. Public Information Meetings -- DEP may conduct public meetings for the purpose of informing the public concerning any aspect of requirements, developments and proposals related to solid waste management and planning.

5.1.3.5 Legal Matters

a. County Code Amendments -- The Director of DEP, in coordination with the OCA, prepares and recommends to the County Executive appropriate amendments to Chapter 48 (Solid Wastes) of the Montgomery County Code and other relevant provisions of the County Code.

b. Executive Regulations -- The Director of DEP, in coordination with the OCA, prepares Executive Regulations appropriate to implement County solid waste programs and policies

c. Legislative Cognizance -- The Director of DEP maintains cognizance of legislation under consideration by the Legislature of the State of Maryland that is

related to solid waste management and provides testimony to legislative committees as may be appropriate.

d. Legal Support -- The OCA provides legal advice and assistance in all legal matters related to solid waste management.

e. Regulatory Compliance -- DEP and sister agencies work cooperatively to ensure that the County complies with all Federal and State regulatory requirements relating to the management of solid waste facilities (see Section 1.4 of this Plan).

5.2 THE SOLID WASTE MANAGEMENT SYSTEM

This section contains a description and plan of action for each major component of the County's Solid Waste Management System. Each plan of action covers the ten-year period from 2007 through 2016. A summary of each plan of action appears as Table 5.1.

5.2.1 County Run Components of the Solid Waste Management System

The principal components of the County's solid waste management system include: (1) the Shady Grove Processing Facility and Transfer Station; (2) the RRF; (3) the MRF; (4) the Yard Trim Composting Facility; (5) the out-of-County hauling and landfill disposal contract; (6) the Site 2 in-county property purchased for potential future landfill use; (7) the waste transportation system; and, (8) the solid waste reduction, reuse and recycling programs. In addition, the County is responsible for the management of the closed Oaks and Gude Landfills.

5.2.1.1 Shady Grove Processing Facility and Transfer Station

a. **Facility Description** -- Refuse collected by licensed waste haulers is delivered to the Shady Grove Processing Facility and Transfer Station. The Transfer Station is located on a 40-acre site adjacent to the 5-acre MRF site in Derwood. The Transfer Station processed an average of 2,210 tons per operating day in Fiscal Year 2007. Temporary increases in the daily tonnage processed occur following inclement weather, holidays, and weekends, during summer months and during periods when competing regional waste facilities shut down or limit the amount of Montgomery County waste they will accept. The current operating permit of 821,500 tons per year does not restrict the daily tonnage processed, provided all other conditions of the permit with respect to the proper management of waste are met.

b. **Transfer Function** -- From 1982 through 1995, refuse received at the Transfer Station facility was transferred from collection vehicles into trailers for transport and disposal at the County's Oaks Landfill. In 1995, modifications were completed at the Transfer Station as part of the development of the Transportation System to facilitate rail haul of processible waste to the RRF. Three solid waste compactors were installed to compress up to 30-ton loads of solid waste into "logs" that are mechanically discharged into 40-foot containers. A fourth compactor was added in 2006. Containers of compacted waste are driven to the rail yard for shipment via rail to the RRF. From 1995 through 1997, ash was delivered by rail

Table 5.1

Solid Waste Management System: Summary Plan of Action

FACILITY/ PROGRAM	SUMMARY PLAN OF ACTION
Shady Grove Processing Facility and Transfer Station	Relocate yard waste transfer and grinding operations to Gude Landfill to reduce site traffic and make space available for future options consistent with CIP project. Maximize materials sold as mulch to minimize tonnage sent for composting. Set yard waste tip fee per Section 5.4.2.1
Resource Recovery Facility	Periodically explore the feasibility of RRF ash and/or non-ferrous recycling. Set tip fee per Section 5.4.2.1. Aggressively market electricity and ferrous to secure the best prices available. Conduct detailed energy balance analysis to maximize thermal and power efficiency.
Materials Recovery Facility	Continue to aggressively market recovered materials to capture best prices. Encourage increased usage of unused MRF capacity by non-residential generators.
Yard Trim Composting Facility	Continue aggressive promotion of grasscycling and backyard composting. Maintain back-up contracts for composting yard trim in excess of 77,000 tons. Increase market share and diversity of compost products produced by the County. Continue on-going program to periodically replace portions of paved pad and improvements to on-site storm water management.
Out-of-County Landfill	Encourage private sector recycling of construction and demolition materials and other nonprocessible solid waste rather than landfilling.
Land Reserved for Potential Future In-County Landfill	Retain the Site 2 property, located in Dickerson, MD, through the entire life of Plan for use in the event economic conditions, changes in law or other circumstances render out-of-County waste disposal infeasible.
Waste Transportation System	Monitor the performance of all transportation contractors to ensure reliability. Build contingency capacity to ensure waste transport.

Recycling and Waste Reduction Programs	Aggressively encourage backyard composting including giving away compost bins. Periodically evaluate the rates at which each type of recyclable is being captured. Increase capture of all recycled materials through existing programs and outreach. Rigorously enforce the recycling bans instituted by ER15-04AM and 18-04. Vary size and styles of replacement carts to fit housing types and maximize usage. Examine the feasibility of targeting additional materials types for recycling including food waste generated at restaurants, schools and institutions. Continue to evaluate innovative collection techniques to increase recycling. Continue to promote cooperative collection contracting among commercial generators
Private Facilities	Work cooperatively to promote expansion and use of private recycling infrastructure within County, including C&D.
Oaks and Gude Landfills	Operate an oil-grit separator for nonprocessible solid waste collected from County storm water captors at Oaks. Implement gas-to-energy projects at both landfills. Improve gas capture and minimize migration.
System Financing	Maintain transparency in fiscal management. Monitor revenue generation methods to assure fair and equitable rates. Track current market conditions to maintain competitive tip fees. Monitor commodity markets to assure County receives most favorable revenues and credits possible from the sale of all recovered resources.
Greenhouse Gasses and Ozone-Related Emissions	Complete solid waste system-wide inventory of GHG and ozone-related emissions. Include net emissions effects in the consideration of future changes in solid waste management system, including but not limited to any addition of new materials targeted for recycling, and changes to the collection and transportation systems. Work with the private sector (subscription) collectors to quantify and reduce emissions.
Collection	Use creative techniques to encourage contracted haulers to propose environmentally friendly options.

from the RRF and nonprocessible waste was transported by truck to the Oaks Landfill for disposal. Since October 1997, in conjunction with the closing of the Oaks Landfill, nonprocessible waste received at the Transfer Station that can not be recycled has been transported by tractor trailer to a private landfill in Brunswick County, Virginia. Ash residue is transported from the RRF by rail to a rail yard serving the same landfill facility and trucked the final 40 miles to the landfill. An area of the Shady Grove Processing Facility and Transfer Station has been made available for the tipping and reloading of nonprocessible construction and demolition debris, which allows for recycling of some of this solid waste.

c. **Public Unloading Area** -- An area of the Shady Grove Processing Facility and Transfer Station is reserved for unloading refuse and recyclable materials delivered in passenger vehicles. This area receives all of the materials accepted in the County's residential curbside collection program. It also promotes reuse and recycling by accepting materials including computers, televisions, automotive fluids and batteries, scrap metal, rechargeable batteries, building materials, textiles, and tires.

d. **Weighing and Recordation** -- All refuse delivered to the Transfer Station in loads over 500 pounds is weighed and weights are recorded. All refuse leaving the Transfer Station is weighed and weights are recorded.

e. **Yard Trim Handling** – The Transfer Station includes areas for receipt, handling (including grinding) and load out of yard trim (grass, leaves, brush, and Christmas trees) collected through the curbside recycling program and self-hauled to the site by residents and commercial businesses. Leaves and grass are ground and transferred to the County Yard Trim Composting Facility. Brush, some leaves and all Christmas trees are ground into mulch that is either sold to commercial mulch

vendors or provided free of charge to County residents. The disposal of yard trim mixed with disposable waste facility is banned.

f. **Plan of Action: Transfer Station** – Within the ten-year time frame of this Plan, the County expects that the average annual tonnage of MSW received at the Transfer Station will not exceed its permit capacity of 821,500 tons. During peak days, the Transfer Station receives over 3,000 tons of waste per day. Recent improvements including the addition of two more truck scales and an addition to the tipping floor have improved operating flexibility for these peak days. A "regular" HHW collection site at the Transfer Station has been operating since FY 2005.

However, as noted above, the facility is increasingly being used to support recycling programs and other solid waste processing functions. Capital improvements to the Shady Grove Processing Facility and Transfer Station have been undertaken to enhance both facility safety and customer service. Improvements include the development of an adjoining recycling drop off area to the public unloading facility, which separates refuse and recycling drop-off traffic. These facility improvements were completed in Fiscal Year 2001. Additional capital improvements were constructed at the Transfer Station in 2007 to safely maintain fundamental waste management services, minimize large collection vehicles from conflicting with smaller vehicles, increase the efficiency of the weighing and dumping of incoming vehicles and the compaction and loading of containers for shipment from the site, and improve the throughput of vehicles through the scaling operation. The same capital improvement project, and ongoing at this time, includes the design of site improvements needed to relocate yardwaste handling operations from the Transfer Station to the closed Gude Landfill. The plan of action includes relocation of yardwaste operations from the Transfer Station to the site of the closed Gude landfill.

5.2.1.2 Resource Recovery Facility

a. **Facility Description** -- The RRF consists of three 600 tons per day mass-burning, refuse-fired boiler units that produce high pressure, high temperature steam used for electrical power generation. The RRF is located on 34 acres of land adjacent to the Mirant Americas Energy Marketing (MAEM) electric generation station near Dickerson, Maryland. The RRF property is owned by Montgomery County and leased to the NMWDA.

b. **Project Management** -- The County is one of seven members of NMWDA. On behalf of the County, NMWDA financed the cost of designing and constructing the RRF and related transportation improvements necessary for the project. For the duration of the outstanding bonds on the RRF, NMWDA owns the facility. Upon repayment of the bonds, scheduled to be complete in 2016, the County may purchase the facility for one dollar. NMWDA contracted for the design, construction, and operation of the RRF through a Service Agreement with Covanta Montgomery, Inc., a subsidiary of Covanta Energy Corporation. The County, in turn, has entered into a Waste Disposal Agreement with NMWDA for the disposal of non-recycled waste and payment of service fees.

c. **Changes to the Waste Disposal and Service Agreements** -- The County must not approve, or allow to take effect, under either the Waste Disposal or Service Agreement, any material change in the capacity or operation, or any material reduction in performance or environmental standards, of the facility or the transportation system unless the Director of DEP has submitted the change to the County Council. The Council must approve or disapprove the proposed change within 30 days or two regular Council work sessions, whichever is longer. If the Council does not act within this time frame, the change will stand approved, unless the Council approves a resolution extending the time allowed for Council action.

d. **Electricity Sales Agreement** -- An Electricity Sales Agreement provides that NMWDA delivers and competitively sells to the electrical energy market, all electricity net of in-plant usage by the RRF.

e. **Monitoring Program** – DEP monitors RRF stack emissions during all operating hours by means of a data telemetry link to the Continuous Emissions Monitoring System (CEMS) provided under the facility's Title V air permit. The CEMS measures the opacity of the plume as well as the emission levels of sulphur dioxide and sulphur dioxide reduction efficiency, nitrogen oxides, hydrogen chloride and hydrogen chloride reduction efficiencies, and carbon monoxide, plus certain operating parameters, including temperatures at specific locations and activated carbon feed rates designed to assure proper continuous operation of the facility's air pollution control (APC) system. In accordance with it's air permit, emissions are also periodically monitored for trace emissions metals and organics that cannot be monitored by the CEMS.

In addition, and not required by any rule, DEP periodically monitors levels in the ambient air at ground level, and in non-air environmental media, of certain pollutants which are emitted from the combustion of MSW and are of concern to the public including dioxins and furans trace metals (including arsenic, beryllium, chromium, cadmium, nickel, lead and mercury).

Currently, pursuant to a County capital improvement project, the RRF is undergoing a voluntary APC upgrade designed to substantially reduce emissions of NOx, and to eliminate the storage and use on site of anhydrous ammonia (a hazardous chemical).

Covanta Montgomery has attained membership status in the USEPA National Environmental Performance Track (NEPT) Program which ongoing membership requires continuous environmental improvements beyond regulatory standards.

DEP, in cooperation with NMWDA and Covanta Montgomery, will require appropriate changes to the engineering and air pollution control systems of the Facility or its operations through change orders or Service Agreement enforcement if the stack and ambient monitoring data disclose levels of pollutants in air or other media that are attributable to the operation of the Facility and unacceptably affect the environment or public health.

f. **Annual Capacity**

The RRF was sized, and is operated, so as not to compete with waste reduction, reuse and recycling activities.

(1) To ensure a complimentary balance between each of these components of the County municipal solid waste (MSW) processing system, the RRF was sized at a nominal design point of 1,800 tons per day and without expansion capabilities, or 657,000 tons per year based on waste with design heating value BTU/lb. During FY07, a total of 593,185 tons of processible waste was sent to the RRF. This includes 42,583 tons of C&D burned, and 550,602 of MSW.

(2) The County maintains a competitive tip fee to control the amount of processible waste delivered to the facility while progress toward achieving the 50% recycling goal also helps moderate the amount of incoming processible waste. The annual target for processible waste to the facility is in the range of 85 percent to 92 percent of permit capacity (e.g. 558,450 to 604,440 tons per year). This goal is pursued by adjustments in the tip fee as described in Section 5.4.2.1. The County

has demonstrated its ability to throttle private sector MSW export, and thus moderate annual deliveries to the County, subject to a lag or response time, to maintain achievement of this policy. Limited bypass of processible waste may be required until the tip fee actions produce desired results. Also, while the RRF is designed, and the annual permit limit is based on, the nominal 1800 TPD throughput capacity noted above, it is physically capable, and it is the County's practice, to process at a higher rate during peak periods of delivery. There is strong seasonality to waste deliveries. Annually, the peak month is typically June. In wintertime, the peak month is typically December. If bypass were to occur, it would most likely be in the peak period month of June. However, during such peak delivery months, the County's first strategy for avoiding bypass would be to run the RRF at its physical limit (e.g. about 58,000 tons per month, as opposed to 54,000 or 1,800 x 30).

In any event, the Executive must notify the Council within thirty days of the close of any calendar quarter during which processible waste is shipped by the County for disposal at its out-of-County landfill. Along with this notification, the Executive must identify what actions – including tip fee adjustments and expanded recycling efforts -- will be taken or are recommended to reduce demand on the RRF. Such notice is not required with respect to private sector MSW export, as that tonnage is tracked by the County on a semi-annual basis. As part of his annual Recommended Operating Budget, the County Executive must notify the County Council of its anticipated RRF throughput and private sector MSW export tonnages for the upcoming fiscal year, as well as the actual RRF throughput and private sector MSW export tonnages that occurred during the most recently completed fiscal year, and the actual RRF throughput tonnage which occurred during the first half of the current fiscal year.

g. **Contingencies** -- In the event of any failure or cessation of operation of the RRF or need to bypass waste, waste materials normally processed by the RRF

shall be processed in a permitted alternative facility. The Service Agreement for Long Term Waste Transportation and Disposal provides for receipt of bypass and non-processible waste and of all waste if the RRF is unavailable for any reason. Additionally, if RRF ash ever fails a toxicity test, the ash will be transported to a properly permitted facility (see Section 3.1.8.1 of this Plan). Controlled bypass of processible waste may also accompany changes in tip fees (see tip fee in section 5.4.2.1).

h. **RRF Ash Recycling** – Pilot studies completed by the County in 2001 with American Ash Recycling Corporation indicated that ash recycling is technically feasible. However, responses to a competitive procurement in 2002 were not viable as the County could not identify a financially viable vendor. Again during 2008, the County solicited interest in ash processing. At this time, there appears to be some technical interest, including in the potential for additional metals recovery, but this is dampened by a recent strong downturn in markets related to global economic conditions. DEP will periodically solicit proposals again in upcoming years and will monitor similar efforts by other jurisdictions.

i. **Plan of Action: Resource Recovery Facility** – DEP will continuously monitor the performance of all contractors related to the operations of the RRF. DEP will aggressively market electricity and recovered ferrous scrap to secure the best price available. DEP will also pursue the potential feasibility and cost effectiveness of recovering non-ferrous metals and/or reuse of RRF ash as road aggregate, construction material and other specialized products. If the Department recommends a new contract to recycle RRF ash, the Executive shall report relevant details to the County Council.

DEP may propose ash recycling in the future, but only if the costs, benefits and risks to recycle ash outweigh those for the disposal of the ash.

The County Council sets solid waste tip fees. DEP analysis shows that the County's tipping fee, in comparison to fees that must be paid by private collectors at alternative disposal sites, influences the extent of solid waste export from the County. Unless the need for an alternative tipping fee is demonstrated by DEP, the tipping fee will be set at a level such that processible waste delivered to the Transfer Station for disposal matches, as nearly as possible, 85 percent to 92 percent of the RRF permitted annual throughput capacity, as described above. DEP will continually pursue feasible efficiencies in RRF operation and environmental performance. DEP will continually strive to increase revenues from the sale of electricity and ferrous materials.

5.2.1.3 Materials Recovery Facility

a. **Facility Description** -- The MRF is located on a 9-acre parcel of land in Derwood contiguous to the Transfer Station. Recyclable materials collected at the curb from single-family residences are transported to the MRF. The MRF also receives recyclables from the Transfer Station drop-off facility, and minor amounts from other sources.

b. **Project Management** – MES operates the MRF under terms of an intergovernmental agreement with the County.

c. **Mixed Paper Transfer** – During Fiscal Year 1999, the MRF was expanded to accommodate the implementation of the residential mixed paper recycling program. OPS transfers mixed paper received at the MRF to the OPS paper recycling facility in the County.

d. **Commingled Container Processing** -- Commingled containers, including glass and plastic bottles, aluminum, ferrous and bi-metal cans and aluminum foil, are sorted and baled or stored in a bunker at the MRF through a combination of mechanical and hand separation. Sorted recyclables are sold to various markets for remanufacture and/or reuse. The MRF has a sorting capability of 100 tons of mixed containers per (8-hour) day. During FY 2002, the tipping floor of the MRF was expanded to allow for increased flexibility in processing of materials. Operations efficiency was further increased at the MRF in FY 2003 when most of the processing equipment was replaced.

e. **Plan of Action: Materials Recovery Facility** – The County has entered into a fifteen-year contract with a private recycling firm, OPS, to transport the County's residential mixed paper for processing at the OPS recycling facility. The County must not approve, or allow taking effect any material change to the mixed paper recycling contract with OPS, unless the Director of DEP has submitted the change to the County Council. The Council must approve or disapprove the proposed change within 30 days or two regular Council work sessions, whichever is longer. If the Council does not act within this time frame, the change will stand approved, unless the Council approves a resolution extending the time for Council action. DEP will strive to increase material revenues and encourage increased usage by non-residential County generators to fill unused MRF capacity.

The Department will encourage non-residential generators to take advantage of available MRF capacity to recycle aluminum, bi-metal, steel, plastic and glass containers.

5.2.1.4 Yard Trim Composting Facility

a. **Facility Description** – In 1983, a 118-acre WSSC sewage sludge composting facility on the former "Matthews Farm" near Dickerson, Maryland was converted into a County-managed yard trim composting facility. Leaves and grass are composted at the facility in an open-air windrow operation using mobile turning and shredding equipment. The facility produces compost that is dried and screened for commercial bulk and bagged material markets. Facility operations occur on a 48-acre bituminous pavement pad and are limited to 77,000 tons per year (see item d, below).

b. **Project Management** -- MES operates the Yard Trim Composting Facility under an intergovernmental agreement with the County.

c. **Community Agreements** -- In 1981, the County and the Sugarloaf Citizens Association entered into a Stipulation Agreement relating to the Yard Trim Composting Facility. The stipulation agreement governed certain substantive and procedural matters relating to operation of the facility and disposition of portions of the former Matthews Farm. In 1996, the County and the Sugarloaf Citizens Association entered into a supplemental Agreement of Settlement and Compromise. The Agreement of Settlement and Compromise serves as a full and final settlement between the parties with regard to all earlier disputes. The agreement establishes limitations upon the operation of the Compost Facility and contains certain host community benefits and considerations. In August 2000, an amendment to the Agreement of Settlement and Compromise was signed by the County and the Sugarloaf Citizens Association to allow bagging of up to 500,000 bags annually at the facility and to provide for physical improvements to some structures on the Matthews Farm community center. The Stipulation Agreement and the Agreement

of Settlement and Compromise, including Amendment 1 are included in Appendix D.

d. **Facility Capacity** -- The Agreement of Settlement and Compromise limits the amount of yard trim processed at the facility to 77,000 tons per year. Per the agreement, the County may exceed the 77,000 ton limitation only if the excessive tonnage is attributable solely to a pilot program and the prior written consent of the Sugarloaf Citizens Association is obtained subject to the provisions of the agreement.

During FY 2007, a total of 77,280 tons of leaves and grass were delivered to the County for composting, and to avoid exceeding that limitation, some of this material was diverted to alternate composting facilities with which the County maintains for that contingency. At the same time the County has: (i) aggressively expanded its promotion of grasscycling and backyard composting, (ii) raised its yard waste tipping fee to dissuade deliveries from outside the County, and (iii) and begun diverting leaves into its mulch production operations. During the subsequent year, demand on the Yard Trim Composting Facility was reduced to 74,040 tons. Projecting that figure to increase in proportion with single-family housing growth suggests that the 77,000 TPY limit in that Sugarloaf agreement might not be reached in FY 2015. However, yard waste deliveries are known to be influenced also by other factors including weather.

e. **Plan of Action: Yard Trim Composting Facility** -- In addition to promoting additional grasscycling and backyard composting, the County will maintain contingency backup composting contracts, and at the same time work toward developing additional yardwaste processing capacity of its own. For the immediate future DEP will continue to: monitor annual tonnages of yard trim processed at the Composting Facility and sources of that tonnage; aggressively promote grasscycling and back yard composting; and, to assure that there is no

delivery exceeding 77,000 TPY to its Yard Trim Composting Facility in Dickerson, MD, will maintain one or more contingency/back-up contracts for composting services at alternate locations.

Contingency contracts may be renewed or replaced from time to time to assure that there is no lapse in contingency coverage. Contingency contract tonnage provided for any fiscal year should provide for no less than a seven percent surge as compared to the most recently completed fiscal year.

DEP will also explore the feasibility of limited yard waste processing in connection with yard waste operations being relocated from the Transfer Station to the site of the old Gude landfill.

Finally, over the next five years, DEP will either develop long-term contractual capacity, or select a site and apply for permitting of at least 20,000 tons of additional yard waste composting capacity for County use. In this connection, the County will explore the feasibility of including limited types of food waste in such procurement.

An on-going structural maintenance program will continue at the Yard Trim Composting Facility including scheduled replacement of portions of the paved pad and regular inspections and preventative maintenance to the on-site storm water management system. To assure ongoing ability of the County to recycle its end products at the lowest net cost to the County, DEP will strive to increase the market share of finished compost products produced at the facility including exploring diversity of mulch and compost products and bag sizes.

The production of compost from yard waste is, in and of itself, a recognized environmental benefit relative to disposal, and the facility itself, is high performing

relative to all regulatory requirements. However, as with any complex operation, the various environmental aspects of the composting operation itself could be further explored for added environmental benefit. To that end, a formal Environmental Management System (EMS) will be developed over the next three years in which environmental aspects of the operation will be inventoried, opportunities for continuing improvement beyond regulatory requirements identified and ranked, and selected opportunities pursued. Once completed, the County will explore the additional costs and benefits of seeking membership in the USEPA National Environmental Performance Track (NEPT) Program.

5.2.1.5 Out-of-County Landfill Contract

a. **Contractual Arrangement** -- The County entered into a contractual agreement to transport RRF ash, nonprocessible waste, and bypass waste for disposal at a private landfill in Brunswick County, Virginia, until at least the Year 2012. At the County's sole option, the contract may be extended for five additional years under the existing terms, and there are no requirements for negotiations or additional obligations in order for the County to do so. Nonprocessible waste is waste that that is not burnable in the RRF. Nonprocessible waste that is recyclable is transported to various recycling facilities. "Bypass waste", as noted earlier, is waste received by the County which is processible at the RRF, but which is not processed at the RRF. The quantity of waste bypassed will generally depend on projections concerning the annual amount of waste received and the extent of seasonal and other fluctuations in the daily amount of waste (see Sections 5.2.1.2(f) and 5.4.1.2). Any bypass waste would be shipped to the landfill in Brunswick County by over the road trailers from the Transfer Station. The landfill is owned by BWMF, a wholly owned subsidiary of Allied Waste Industries of North America, Inc. which was recently purchased by Republic Services, Inc. Subject to certain limitations, the contract also requires that BWMF dispose of Montgomery County's

waste in an isolated landfill cell dedicated to Montgomery County waste. In the absence of notice from the County, this requirement is subject to a total tonnage limitation equal to 110 percent of the immediately preceding twelve month total tonnage delivered to BWMF. With notice, the County can increase tonnages required to be so disposed by 20 percent over any immediately preceding twelve month period. In the event that the County delivers tonnages exceeding these limitations, BWMF is still required to accept transport and dispose of the County's waste. The contract prohibits the storage, handling or disposal of any waste delivered by the County at any site or facility other than those explicitly approved by the County. The backup plan for the Brunswick landfill includes a contract provision that makes available landfill space at a facility in Georgia or other County-approved alternative facilities owned by the contractor if the Brunswick facility is not available to the County for any reason during the term of the contract.

b. **Facility Description** -- The private landfill in Brunswick County, Virginia, is a permitted Subtitle D facility that opened in March 1997 and all other permits needed for this site are current and valid. The County's contract, see above, provides for disposal of County waste (RRF ash, nonprocessible waste and bypass waste) in a dedicated landfill cell reserved exclusively for County waste. An aerial survey conducted on January 16, 2008 indicated that dedicated cell had the potential to develop additional capacity of 6.9 million cubic yards of airspace (or until at least the year 2025 at current utilization rates assuming 2,500 lb/cy in-place density for ash and 1,000 lb/cy for other waste).

c. **Changes to the Out-of-County Waste Disposal Contract** -- The County must not approve, or allow taking effect, any material change to the waste disposal contract with BWMF unless the Director of DEP has submitted the change to the County Council. The Council must approve or disapprove the proposed change within 30 days or two regular Council work sessions, whichever is longer. If

the Council does not act within this time frame, the change will stand approved, unless the Council approves a resolution extending the time allowed for Council action.

The waste disposal contract with BWMF contains discretionary rights to mitigate damages to the County under certain circumstances. These include the right to allow waste from other sources to be placed in the County's dedicated cell and the right to allow County solid waste to be placed in a non-dedicated cell. The County Executive must not allow or direct the commingling of out-of-County waste with County solid waste in the County's dedicated cell without first obtaining approval from the County Council. Should the County Executive propose the commingling of solid waste from non-county sources in the County's dedicated cell, the County Council must approve or disapprove the proposed change within two regularly scheduled Council meeting. If the Council does not act within this time frame, the change will stand approved, unless the Council approves a resolution extending the time allowed for Council action.

d. **Plan of Action: Out-of-County Landfill** – The County anticipates exercising it option to extend its contract with BWMF through 2017. Under the contract, County has reserved the option to recycle any portion of the waste stream currently being landfilled. DEP will continue to periodically evaluate the feasibility and cost effectiveness of recycling RRF ash and other solid waste materials transported to the BWMF Inc. landfill for disposal. Presently, selected rubble material and bulky wood waste is segregated for recycling at the County Transfer Station. DEP will encourage recycling of rubble and other nonprocessible solid waste rather than landfilling. So as to assure availability of a dedicated cell, the County will track, on a rolling twelve month basis, the amount of waste disposed of via its out-of-County Landfill contract. If, at the end of any three-month period, the three-month

total exceeds by 10 percent or more the amount for the same period during the previous year, then the County will give such notice.

5.2.1.6 Land Reserved for Potential Future In-County Landfill

The County's central principal disposal facility for RRF ash, nonprocessible waste and bypass waste is a contracted out-of-County landfill. The out-of-County waste transportation and disposal contract also guarantees the provision of an out-of-County back-up facility in the event the primary facility becomes unavailable. In the event economic conditions, changes in law or other circumstances render out-of-County waste disposal infeasible, the County retains the option to develop a landfill at Site 2 near Dickerson on land owned by the County.

a. **Site Description** -- The County has acquired approximately 820 acres along Wasche Road near Dickerson, Maryland to be held in reserve for use in the event economic conditions, changes in law or other circumstances render out-of-County waste disposal infeasible. The location of the land reserved for possible future landfill use is known as "Site 2." Site 2 was selected as a result of a 1990 study that evaluated 16 in-county candidate landfill sites using 26 criteria adopted by the County Council in Resolution 11-787. The landfill site selection criteria are incorporated in this Plan by reference and are included in Appendix C. Should a waste disposal facility be constructed at this site, the footprint of the landfill would consist of approximately 125 acres.

b. **Site Improvements** -- The County intends to maintain the current agricultural use of the Site 2 location. With the exception of activity to preserve select historic structures on the former "Chiswell Farm," restoration of the barn on the former Draper property and maintenance of existing residences as needed to assure economic viability as residential rental units in keeping with the agricultural

nature of the neighborhood, and as needed to assure compliance with applicable law and regulation, the County will not make any improvements to the site as long as the out-of-County landfill option remains viable. Pending a final determination on the ultimate need to construct a landfill at Site 2, the property will remain in agricultural use.

c. **Plan of Action: Land Reserved for Potential Future In-County Landfill** -- The County intends to retain the Site 2 property through the ten-year planning period and beyond for use in the event economic conditions, changes in law or other circumstances render out-of-County waste disposal infeasible. MDE issued a refuse disposal permit for this site. The County has postponed indefinitely the construction of the landfill. The County may likewise suspend other permit and governmental approval processes at convenient points in the processes to minimize repeating completed work and phases in the event the processes need to be resumed. After a group of citizens filed an appeal regarding the issuance of the permit, the County agreed to join the citizens group to dismiss the appeal until the County decides to proceed with construction of the landfill (see Stipulated Order of Dismissal in Appendix D). The County may commence construction of the landfill at any point in time as it determines that such action to be in the interest of public health, safety and welfare, in accordance with the terms and conditions of this landfill's Refuse Disposal Permit, and any applicable court orders or consent orders.

5.2.1.7 Solid Waste Transportation System

The solid waste transportation system primarily consists of moving solid waste from the Transfer Station to the RRF, from the RRF to the out-of-County landfill, and from the Transfer Station to the out-of-County landfill, or to recycling facilities.

a. **Transfer Station to RRF: Processible Waste and Yard Trim** -- Processible waste received at the Transfer Station is hauled 18 miles by rail to the RRF. Processible waste is rail hauled in enclosed forty-foot long intermodal containers. Containers are stacked two high on lightweight, special purpose rail cars and travel via an existing railroad right-of-way between a railroad yard adjacent to the existing Transfer Station and a 1.2 mile access track and rail yard adjacent to the RRF. Rail service is provided by CSX Transportation, Inc.

In addition, a portion of the yard trim sent to the Yard Trim Composting Facility is transported from the Transfer Station via rail.

b. **RRF to Out-of-County Landfill: RRF Ash** -- BWMF transports ash from the RRF via rail over existing commercial rail lines to a depot in Petersburg, Virginia. From the rail depot, the ash is transferred to trailers for roadway transport to a privately owned landfill in Brunswick County, Virginia.

c. **Transfer Station to Out-of-County Landfill: Other Wastes** -- Brunswick Waste Management transports nonprocessible waste, and if necessary bypass waste. Nonprocessible waste is waste that is not suitable for burning. Nonprocessible waste that can be recycled is sent to various regional reclamation facilities. The remaining nonprocessible waste that cannot be recycled is generally loaded into containers at the Transfer Station and shipped via over-the-road trailers to the privately owned landfill in Brunswick County, Virginia. A small amount of nonprocessible waste is loaded into containers at the RRF and shipped by rail to the landfill. Waste will be bypassed if the daily amount of burnable waste received exceeds the capacity of County facilities or projections predict that future waste receipts will cumulatively exceed the physical or permitted capacity of County facilities. The bypass waste is loaded into containers at the Transfer Station and

shipped via over-the-road trailers to the privately owned landfill in Brunswick County, Virginia.

d. **Plan of Action: Waste Transportation System** – DEP will monitor performance of all transportation contractors. DEP will enforce all contractual service standard requirements to ensure reliable and uninterrupted movement of wastes and build contingency capacity to ensure waste transport.

5.2.1.8 Recycling and Waste Reduction Programs

a. **Recycling** -- Recycling Goal -- The County's goal is to achieve, maintain or exceed 50 percent recycling of municipal solid waste (MSW) by the end of Calendar Year 2010. In selecting initiatives to meet this goal, DEP will focus its efforts where the greatest opportunities exist. DEP will conduct cost avoidance studies to establish what further recycling is economically feasible to exceed this goal. The program will continuously identify potential recycling sources, programs and markets, and will provide a system to match recycling sources with recycling programs and recycling markets. For the purpose of this calculation, the recycling rate shall be defined as the total measurable quantity of MSW that is recycled, composted or source reduced as a percent of the total quantity of MSW generated in the County. In performing its calculation, DEP will utilize, to the maximum extent possible, documented data sources. Waste materials that are not typically considered MSW, including land clearing debris, construction and demolition debris, hazardous waste, and special medical waste, and incinerator ash is not to be counted in the County's recycling rate calculation (see Council Resolution 14-443 in Appendix F). In order to implement this, DSWS has implemented a means of accounting for any C&D that is burned at the RRF.

As demonstrated in Section 3.1.10 of this Plan, current County recycling efforts exceed the MRA goal of 40 percent diversion rate[1].

b. **Waste Reduction** -- The County Executive will evaluate the opportunities for waste reduction and conduct education and outreach programs to explain the need and opportunities for waste reduction. The County Executive will work with regional agencies, notably the Council of Governments and the State of Maryland, and with the Federal Government to promote state, regional, and national waste reduction efforts, including promoting packaging legislation with the goal of reducing the volume and increasing the recyclability of packaging. The County Executive will evaluate and report on the amount of waste reduction or increase that has taken place to date.

c. **Single-Family Residential Recycling** -- County Regulation 15-04AM establishes the entire County as a recycling service area. All single-family residences in the County, with the exception of those in certain incorporated municipalities, receive curbside collection of mixed paper, glass containers, aluminum cans and foil products, steel and bi-metal cans, certain plastic containers, grass, brush, leaves, Christmas trees and large household appliances ("white goods") and select other scrap metals. Chapter 48 of the County Code mandates participation in the curbside recycling program for all residents of buildings comprised of six or fewer dwelling units. The curbside recycling program includes a public outreach campaign to maximize recycling participation and reduce contamination. Specifically, outreach activities include media advertisements, the DEP/DSWS web site, delivery of service notices (on recycled paper) to each resident as new or additional recycling services are introduced, and other promotional activities such as participation in fairs and public appearances.

1 In 2000, Maryland established a voluntary statewide waste diversion goal of 40%.

In the cases of townhouses, multi-family properties with six or fewer dwellings, and properties with unusual configuration, it may be necessary to provide recycling collection by other than current means. Space constraints as well as the absences of driveways and garages in some townhouse communities offer particular challenges to successful recycling. An opportunity may exist to improve recycling participation and set out in townhouse communities through use of alternative bins of sizes and types that are more manageable in a townhouse environment. DEP will evaluate other alternate means and levels of service to promote recycling at such properties.

d. **Yard Trim** -- The County Executive conducts a vigorous outreach and education program to encourage residents to leave grass clippings on lawns ("grasscycling") and to engage in backyard composting of grass and leaves. Yard trim, including leaves, brush, and grass clippings have been banned from being delivered to, or processed at, the RRF or any landfill which is part of the County's waste management system. DEP will continue to give away compost bins to promote backyard composting, and will continue to aggressively promote both backyard composting and grassycling. DEP will develop additional specific strategies to minimize the growth of yard trim brought to the Yard Trim Composting Facility, will maintain back-up contract composting capacity, and explore the feasibility of developing additional county composting capacity. Finally, the Executive may recommend further adjustments in the yard waste tip fee to control the amount of yard trim delivered to the County system.

e. **Multi-Family Residential Recycling** -- The County mandates through Executive Regulation the recycling of mixed paper, commingled containers, yard trim, Christmas trees, and scrap metal items at all apartment and condominium properties with greater than six dwelling units. All multi-family properties with greater

than 6 units must submit to the County an annual waste reduction and recycling report including information on the tonnages of materials collected for recycling and for disposal for that property.

The County assists multi-family residential property owners in complying with recycling and reporting requirements. The County has established technical and peer assistance programs to provide technical expertise to multi-family property owners and managers in beginning, maintaining, or expanding recycling programs, and to residents in encouraging and promoting recycling.

f. **Commercial, Institutional and Government Recycling** -- Executive Regulation 15-04AM mandates recycling of mixed paper or sorted paper, commingled containers, yard trim, Christmas trees, and scrap material items at all County businesses, institutions and government agencies. As detailed in Executive Regulation, businesses with 100 or more employees, as well as certain select other businesses, must prepare a waste reduction and recycling plan demonstrating how the business will recycle or reduce its solid waste. These same businesses also are required to submit to the County an annual waste reduction and recycling report including information on the tonnages of materials collected for recycling and for disposal for that property.

The County assists non-residential property owners in complying with recycling and reporting requirements. The County has established technical and peer assistance programs to provide technical expertise to businesses in beginning, maintaining or expanding recycling programs and to solicit the cooperative support of employers in encouraging and promoting recycling.

The County will involve private industry in a planning partnership to increase the infrastructure needed to collect, transport, sort, and process recyclable business

waste. Issues that this partnership should address include waste auditing of businesses to establish recycling feasibility; the role of public collection contracts and the County recycling center in business recycling; and the possibility of the County acting as the market of last resort for recyclable materials.

The County Executive should identify potential sources of grants, credits or loans to provide funding for recycling programs.

g. **Waste Stream Detoxification** -- Some household and business wastes in MSW may have hazardous characteristics (toxicity, ignitability, corrosivity, or reactivity). Hazardous materials frequently found in homes and businesses include: pesticides, oil-based paints, paint thinners and solvents, batteries, fuels, used motor oil, brake fluid, antifreeze and photographic chemicals. To prevent this material from entering the MSW stream, the County sponsors up to four HHW collection events annually at up to four sites around the County. A “regular” drop-off collection site has been established at the Transfer Station. The County also sponsors the "Ecowise" program featuring monthly collection events at which eligible small quantity hazardous waste generator businesses may dispose of up to 100 kilograms of hazardous materials. All materials received through both the HHW and the Ecowise programs are collected and transported to permitted TSD facilities by County contractors in accordance with all Federal and State regulations governing hazardous waste.

A “regular” HHW drop-off collection site at the Transfer Station was opened in 2004. In order to increase program participation, the County has increased HHW operating hours to 9AM to 5PM, seven days a week. DEP will seek to expand participation in the small quantity hazardous waste generator program for County businesses.

In addition to the HHW and Ecowise programs, the County has a drop-off program for computers (CPUs), monitors and related electronic items at the Transfer Station, and it recently expanded this program to include TV sets, computer monitors, cell phones, and virtually any electronic device with a cord. Material is accepted from County residents and businesses. Some computer components in working order are salvaged for reuse; hazardous and toxic materials in unusable components are recovered for proper disposal.

In addition to accepting these electronics at the Transfer Station, DEP has just recently begun to routinely conduct several electronic collection events per year at various, more convenient, locations around the County. In the future, DSWS will continue to explore the most effective means of attracting electronics for recycling.

For CFLs the County will continue to work to expand the number and locations of retailers who accept CFLs for recycling.

DEP shall conduct an on-going assessment of existing waste detoxification procedures and identify additional feasible programs, and costs of such programs, to expand the detoxification of the waste stream in a manner that minimizes environmental and legal liability risks.

h. **Incorporated Municipalities** – Both the City of Rockville and the Town of Gaithersburg have now adopted the single-family components of the County's recycling regulation ER15-04AM. The County will encourage each of the remaining incorporated municipalities in the County to establish efforts similar to its recycling program. The County has provided access to the MRF to all County municipalities providing curbside recycling collection services including commingled containers and source separated residential mixed paper. Some County recycling program

resources, particularly in support of multi-family and non-residential recycling, have been made available to the municipalities.

i. **Purchase of Goods Containing Recycled Materials** -- Section 11B-56 of the Montgomery County Code establishes that recycled paper and paper products should constitute at least 50 percent of the total dollar value of paper and paper products purchased by or for the County government. The same section of the County Code also mandates that County agencies either require the use of goods containing recycled materials or use of a percentage price preference (up to 10 percent) for recycled materials when purchasing goods. The Office of Procurement reviews all purchasing agreements to ensure compliance with the requirements of the County Code. DEP distributes information on the availability of products containing recycled materials to County businesses and municipalities to encourage them to use these materials.

j. **Plan of Action: Recycling and Waste Reduction Programs** -- As of the end of Fiscal Year 2007, the residents and businesses of Montgomery County had achieved a recycling rate of approximately 43.2 percent.

To reach its 50 percent recycling goal, the County maintains an ongoing recycling planning and implementation process. Formally punctuating that process, the County annually publishes its "Recycling Plan Update". That Plan reports on specific program achievements, lays out how the 50% goal is being pursued under approved programs, and identifies potential additional initiatives that can be introduced in a subsequent budget year, if needed. DEP, on an annual basis, will update this document as the program is revised or amended introducing additional programs and initiatives if needed. Copies of that document are available from DEP. Highlights of the strategies that DEP will pursue to improve recycling performance over the next three years include the following:

- Continue providing education, outreach, training, technical assistance, and guidance across all sectors to single-family and multi-family residents, multi-family property owners, managers, condominium and common ownership community boards, and businesses including business owners, managers, commercial property owners, property management companies, employees, commercial service providers, and refuse and recycling collection companies to further increase participation in recycling, waste reduction and buying recycled programs.
- Continue to provide a comprehensive level of outreach, education, training, technical assistance and site-specific recommendations to businesses and multi-family properties to implement, improve or expand on-site recycling programs through the use of on-site visits by staff.
- Continue dedicated enforcement of the County's recycling regulation, Executive Regulation (ER) 15-04AM as it pertains to businesses and multi-family properties by thoroughly investigating cases of non-compliance.
- Continue dedicated enforcement of the County's companion recycling regulation, Executive Regulation (ER) 18-04 pertaining to haulers and collectors of solid waste, which regulation, together with ER 15-04AM, implements the County's ban on disposal of targeted recyclables.
- Expand efforts to further implement cooperative recycling and refuse collection programs among businesses in the Central Business Districts. Data has shown that when businesses that generate similar types of waste contract their recycling and refuse collection services together with one collection service provider and share a common set of recycling and refuse collection containers, the businesses increased the amount of materials they recycle and the majority of participating businesses have seen a decrease in their monthly recycling and refuse collection service costs due to collection efficiencies.

Target Additional Materials for Reuse: As opportunities arise, the County will target additional types of materials for reuse programs. The County will refine waste generation and waste reduction measurement techniques, document results of waste reduction activities, and develop cost/benefit assessments for new waste reduction initiatives. The County will continue to work cooperatively with regional organizations to promote waste reduction, including support of legislative initiatives pertaining to waste reduction.

Target Additional Materials for Recycling: The Department will continue to explore any practical opportunity to expand the range of material types that can be recycled, whether by curbside collection, drop-off or special events. In particular, DEP will monitor potential technological advances in food waste composting to determine if this activity may one day be suitable for implementation in the County. This can include programs that target specific types of food waste generators (e.g. institutions, grocery stores, and restaurants). Tonnage magnitude need not be the only measure of focus in seeking new venues for recycling. The Department may look for opportunities to develop new cost effective programs for materials that are currently recyclable but are relatively small components of the waste stream.

In July, 2008, the County expanded the types of plastics included in its recycling programs. Almost all types of plastics other than clamshells, toys, and film plastics are now included. Markets for film plastics continue to require purities beyond the practicable capability of the County's curbside collection program. However, film markets have demonstrated tolerance for the grocery store type bags returned to some of those stores. Virtually all grocery stores in the County take bags for recycling. The County will continue to work with retailers to promote film plastic recycling via this route.

New Education Methods: The Department will appraise the effectiveness of alternative education and outreach strategies and will focus its efforts on initiatives quantifiably demonstrated to have measurable positive effect on recycling performance. The Executive's annual operating budget submission must include summary findings of participation studies, focus groups, surveys and other research used to evaluate the effectiveness of alternative techniques and must describe how these findings justify the specific outreach, education, and technical assistance proposed for funding in the upcoming fiscal year.

5.2.1.9 Closed Landfills

a. Gude Landfill -- The closed Gude Landfill is located on an approximately 120-acre tract in the central part of the County just north of Rockville. It also checks for the presence of landfill gas in gas monitoring wells along the perimeter of the site. Closed since 1982, the County currently monitors the ground water quality at the site. The County has retained a contractor to maintain an active methane gas collection system at the Gude Landfill. Methane extracted from the closed Landfill will be used to generate electricity at a small on-site power plant. A power plant was at the site from 1985 to 2006. A new facility is scheduled to be completed in 2009.

b. Oaks Landfill – The Oaks Landfill is located on a 545 acre tract near Laytonsville, Maryland. From 1982 through 1995, the County transported all of its MSW collected at its facilities to the Oaks Landfill. From 1995 through 1997, the County transported RRF ash and nonprocessible waste to the 180-acre Landfill. The County closed the Oaks Landfill in October 1997 concurrent with the commencement of the contract to dispose of RRF ash, bypass and nonprocessible waste at a private landfill in Brunswick County, Virginia. Capping of the Oaks Landfill was completed in 2001. The Oaks Landfill has a leachate pretreatment facility and a gas management facility that will continue to be operated throughout

the 30-year post-closure maintenance period. A landfill gas-to-energy facility is scheduled to begin operation in 2009.

Leachate is collected from the Landfill and stored in lined lagoons. The leachate is then pumped to an on-site pre-treatment plant, and treated before being transported by truck for discharge into the permitted sanitary sewerage system. Landfill gas blower/flare systems and leachate management systems are checked daily by the site leachate pretreatment plant contractor and other contracted security and operations personnel. Routine site inspections are performed to check for litter, illegal dumping along the site perimeter, erosion, fence damage, and other general maintenance issues.

The County regularly samples ground water monitoring wells at the Oaks Landfill site. In 1992, low levels of volatile organic compound contamination were detected from seven of the 22 monitoring wells and four nearby residential drinking water wells. To mitigate concern regarding water safety, the County initially provided point-of-entry activated carbon water treatment systems to residences with well contamination. The County also provided bottled water to all other potentially affected households. Since then, the County, in conjunction with WSSC, constructed a potable water distribution system to all potentially affected households around the perimeter of the landfill from the WSSC water supply system in the area.

c. **Plan of Action: Closed Landfills** -- DEP performs all actions necessary for post-closure care of the Oaks and Gude Landfills. Post-closure care and maintenance is performed by contractors on an on-going basis in accordance with State and Federal requirements[2]. Ground water quality monitoring will continue

[2] Landfill closure and post-closure requirements as described in the Code of Federal Regulations 40 CFR, Part 258.

under the currently approved monitoring plan until such time as reductions in frequency and range are mutually agreed to by the County and MDE.

Methane and leachate extraction practices will continue at the County's closed landfills. The County constructed a landfill gas recovery and flaring facility at the Oaks. Both landfills have active flare systems for gas control. Gas-to-energy facilities for each site are scheduled for completion in 2009.

Based on recommendations from the community concerning the long-term use of the landfill property, the County, in conjunction with M-NCPPC, developed hiker, biker and equestrian trails in the 350-acre buffer area around the Oaks Landfill. The capped landfill will be maintained as an open space meadow wildlife habitat.

5.2.1.10 Beauty Spots: Satellite Drop-off Centers

a. **Operations** – The County operates two satellite drop-offs facilities (also referred to as convenience centers or "Beauty Spots") for the purpose of citizen disposal of bulky residential solid waste. These convenience centers are located in Poolesville, at 19200 Jerusalem Road, and in Damascus, at 26149 Ridge Road. Operating hours for citizens' waste disposal are limited to weekends, from 9:00 a.m. to 5:00 p.m. on Saturdays, and from 9:00 a.m. to 1:00 p.m. on Sundays. Typical materials received at the centers are large, bulky items such as home remodeling debris, and furniture.

b. **Plan of Action** -- The County only accepts non-recyclable bulky waste from County residents at the Poolesville and Damascus satellite drop-offs facilities. The Department will enforce this policy to restrict disposal of waste from non-residential and out-of-County generators. The Department will periodically re-evaluate the manner of providing this service, including facility operating hours, to best accommodate community needs.

5.2.1.11 Waste Collection

a. **Operations** –. The County plays a large role in the collection of waste, as described in Section 3.2, contracting for with the private sector for curbside collection of disposable refuse and separate collection of recyclables and licensing private sector collection.

b. **Plan of Action** -- The County will continue to play its current role in waste collection services as described in Section 3.2. However, with increased interest in greenhouse gas (GHG) and ozone-related emissions, the County should use creative techniques to encourage contracted haulers to propose environmentally friendly options.

5.2.1.12 Greenhouse Gas and Ozone- Related Emissions

a. **Operations** –. As described in Section 4.6, the County is taking a leadership interest in the management of greenhouse gas (GHG) and ozone-related emissions, and recognizes that all aspect of its solid waste management system can play a part.

b. **Plan of Action** -- The County will develop a complete, solid waste system-wide, inventory of GHG and ozone-related emissions, and will include net emissions effects in the consideration of future changes in solid waste management system.

5.2.2 Biosolids from Wastewater Treatment Plants

A fuller description of the County's wastewater and biosolids management plan is detailed in the *Comprehensive Water and Sewer Plan for Montgomery County.*

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5.2.2.1 Wastewater Treatment Plants

a. **Description of Facilities** – There are four wastewater treatment plants (WWTP) that generate biosolids in Montgomery County. These plants are the Damascus, Hyattstown, Poolesville and the Seneca WWTP. The biosolids generated at these plants are beneficially land applied to agricultural cropland in the region by private contractors.

Combined, the four wastewater treatment plants generate approximately 6,000 dry tons of biosolids per year.

b. **Plan of Action: Seneca Wastewater Treatment Plants** – The Seneca Wastewater Treatment Plant has been expanded from a 5 mgd facility to a 20 mgd facility. Expansion of the facility has resulted in an increase in the amount of dry tons of sludge produced. However, the increased efficiency of the sludge dewatering facilities will improve future land application by reducing the number of wet tons of biosolids that will be transported and applied to agricultural land.

5.2.3 Private Facilities

5.2.3.1 Private Municipal Solid Waste Facilities

a. **Permit Requirements** -- Private persons who wish to operate solid waste disposal facilities in Montgomery County may not do so without a State solid waste

disposal permit. The State will not issue a permit unless the site is consistent with the Comprehensive Solid Waste Management Plan. With respect to private sites:

(1) The County will review and comment on State solid waste disposal permit applications; the site and any facility on the site must comply with all County laws and with relevant parts of this Plan.

(2) The County, as part of its review of permit applications, will designate materials that private facilities are permitted to process. These designations will be made at the time of application according to public solid waste flow control needs and may change from application to application.

(3) At the time that a property owner applies for a State solid waste refuse disposal permit, the County will review the permit application in accordance with Section 9-210 of the Environment Article of the Annotated Code of Maryland to determine conformity of the proposed private facility with County land use, zoning and solid waste laws, regulations and plans.

b. **Zoning Requirements** -- The County Zoning Ordinance limits privately owned transfer stations, landfills and incinerators to the I-2 heavy industrial zone. Moreover, these facilities are permitted in the I-2 zone only if the County Board of Appeals grants a special exception determining that the specific I-2 parcel is suitable for a transfer station, landfill or incinerator in accordance with the standards set forth in the Zoning Ordinance. The Zoning Ordinance allows a construction recycling facility in a Rural Service Zone provided that the facility meets special development standards set forth in Section 59-C-9.83 of the County Zoning Ordinance. These requirements set minimum standards for lot size, road frontage, distance to an interstate interchange, building set back, and on-site screening and landscaping. The facility also requires a construction debris recycling permit that satisfies the materials

handing and reporting requirements of Section 59-C-9.84 of the County Zoning Ordinance. The Zoning Ordinance allows private recycling facilities in select industrial zones.

5.2.3.2 Other Private Waste Facilities

Private facilities handle 42 percent of the rubble, land clearing and C&D generated in the County. One privately-owned facility located in Clarksburg has sufficient permit capacity to handle all of the C&D generated within the County. In addition, as detailed in Chapter 4, there are many other options located outside the County where collectors chose to take C&D. Other privately-owned facilities, almost exclusively located outside of Montgomery County accept land clearing, hazardous wastes, medical wastes, dead animals, automobiles and tires.

5.2.3.3 Plan of Action: Private Facilities

The lack of nearby acceptance facilities for yard trim, food and other special recyclable wastes limits the feasibility of additional private sector recycling. DEP will explore interest and roadblocks to the private sector development of nearby recycling facilities for such special wastes as yardwaste and foodwaste. The permitted private C&D facility in Clarksburg, is accepting far less than its permit allows and recycling less than 40 percent of the material it does accept. DEP will explore means of promoting private sector recycling of this type of waste as well. While limited opportunity exists to site new special waste facilities in the County, DEP will continue to review, and possibly modify, existing regulations to promote the expansion of private recycling infrastructure within the County.

5.2.4 Data Management and Reporting

5.2.4.1 Solid Waste Data Management

The County gathers solid waste data from a variety of sources that are used to determine disposal rates, recycling rates, waste reduction activity, and other key measures. Certain solid waste data are readily attainable from in-county sources. Tonnages from County facilities are available for input into a data management system. For example, the tonnages of MSW processed at the Transfer Station and the tonnages of recyclables handled at the MRF are recorded on-site.

Other data points must be determined by less direct means. County regulations require all licensed private haulers and collectors to report, semiannually, on the amount and disposition of waste collected (i.e. tonnage, by type, and where they took it, including non-county facilities). Reporting required under ER15-04AM complements this data and is used to reconcile sector-relative recycling and disposal tonnages. Specialized studies are used to monitor some minor waste streams not reported by the foregoing means. Periodically (e.g. every four years) the County conducts an analysis of the composition of the disposed waste stream ("Tip and Sort") involving statistical sampling of the waste delivered for disposal at the Transfer Station. In addition to providing thorough support for tracking its progress toward achieving its recycling goal and guiding future efforts on that front (such as enabling the analysis reflected in Table 4-1), these studies also ensure that system benefit charges are properly allocated (see Section 5.4.2.2).

5.2.4.2 Monthly Reports

DEP prepares monthly reports that summarize current County solid waste activities. These reports include monthly tonnage throughout for major County solid

waste facilities, a summary of citizen advisory group and volunteer activities as well as updates on each program of the County's solid waste management system. Monthly reports are distributed to the County Council and to interested citizens.

5.2.4.3 Department Reports to the County Council

DEP will report annually to the County Council regarding the status of the County's solid waste management system. Annual reporting will include:

a. The annual average actual unit costs ($/ton) for major tonnage-related County solid waste programs and activities evaluated on a full-cost accounting basis;

b. An estimate of the current overall County recycling rate calculated on a fiscal year basis, which report shall appear on the DEP website;

c. An estimate of the marginal costs of increased recycling;

d. A Progress reports on implementation of recycling programs including description of major initiatives planned for the upcoming year necessary to implement the policies included in this plan, which report may be included in the annual update of the Recycling Plan Update referred to in section 5.2.1.8(j), above; and

e. An estimate of the greenhouse gas and ozone-affecting emissions generated by the solid waste management system, and an identification of opportunities for their reductions achievable by changes in component activities of the solid waste management system including increased recycling, and changes to the collection and transportation systems. (The first of this new reporting requirement (e) is to be provided within one year of adoption of this plan.)

In addition to annual reports, DEP will brief the County Council quarterly or at other frequencies as necessary to inform the County Council regarding the implementation of this Plan and the operation of the County's solid waste management system.

5.2.4.4 Plan of Action: Data Management and Reporting

DEP will continue to maintain its detailed solid waste databases including data pertaining to disposal tons at County facilities and elsewhere, recycling tons at County facilities and elsewhere, per capita and per employee waste generation rates, recycling and composting rates, source reduction trends, waste stream composition and per ton waste processing costs. In addition, the County will seek to improve data gathering from external sources, particularly related to refuse and recyclables processed at non-county facilities.

In cooperation with SWAC, DAFIG and other interested parties, DEP will continue to develop and implement a series of annual performance measurements which will track the efficiency and effectiveness of County solid waste programs and services in the form of both internal benchmarking (measuring continuous improvement over time) and external benchmarking (comparing with other high-performing jurisdictions) for selected programs.

5.3 ADEQUACY OF EXISTING SYSTEM TO HANDLE WASTE STREAMS

5.3.1 Municipal Solid Waste; Residential, Commercial, Industrial, and Institutional MSW

The MSW stream consists of domestic wastes generated by the residential, commercial, industrial, and institutional sectors. County solid waste facilities,

including the Shady Grove Processing Facility and Transfer Station, the RRF, the MRF, the Yard Trim Composting Facility, the out-of-County landfill, are available to handle the MSW generated by these sectors.

5.3.1.1 Residential Municipal Solid Waste

As indicated in Table 3.1, MSW generated from the residential sector in Fiscal Year 2007 was 604,113 tons. Of this total, 472,819 tons were processed at County and other facilities for disposal and 297,502 tons were recycled or composted. Table 3.1 (a) - (d) also projects residential waste generation for the 10-year time horizon of this Plan using the per capita rate applied to population projections. Accordingly, changes in residential waste generation are directly proportional to changes in population. The Year 2016 generation for this sector is projected to be 657,165 tons. Of this total, 334,702 tons are projected for disposal and 322,463 tons are projected for recycling or composting.

5.3.1.2 Commercial Municipal Solid Waste

As indicated in Table 3.1, MSW generated from the commercial sector in Fiscal Year 2007 was 378,005 tons. Of this total, 180,497 tons were processed by County and other facilities for disposal and 141,018 tons were recycled. Table 3.1 also projects commercial waste generation for the 10-year time horizon of this Plan using a fixed per employee waste generation rate multiplied by projected County employment levels. Accordingly, changes in commercial waste generation are directly proportional to changes in employment. The Year 2016 generation for the commercial sector is projected to be 428,357 tons. Of this total, 235,288 tons are projected for disposal and 193,069 tons are projected for recycling.

5.3.1.3 Industrial Municipal Solid Waste

As indicated in Table 3.1, MSW generated from the industrial sector in Fiscal Year 2007 was 204,554 tons. Of this total, 97,674 tons were processed at County and other facilities for disposal and 76,311 tons were recycled. Table 3.1 also projects industrial waste generation for the 10-year time horizon of this Plan using a fixed per employee waste generation rate multiplied by projected County employment levels. Accordingly, changes in industrial solid waste generation are directly proportional to changes in employment. The Year 2016 generation for the industrial sector is projected to be 231,802 tons. Of this total, 127,324 tons are projected for disposal and 104,478 tons are projected for recycling.

5.3.1.4 Institutional Municipal Solid Waste

As indicated in Table 3.1, MSW generated by the institutional sector in Fiscal Year 2007 was 35,803 tons. Of this total, 17,096 tons were processed at County and other facilities for disposal and 13,357 tons were recycled. Table 3.1 also projects institutional waste generation for the 10-year time horizon of this Plan using a fixed per employee waste generation rate multiplied by projected County employment levels. Accordingly, changes in institutional waste generation are directly proportional to changes in employment. The Year 2016 generation for the institutional sector is projected to be 40,572 tons. Of this total, 22,286 tons are projected for disposal and 18,287 tons are projected for recycling.

5.3.1.5 Adequacy of System and Facilities

In FY 2016, the combined total MSW generation from all sectors is projected to be 1,357,896 tons. Of these, and 638,296 tons are projected to be recycled leaving 719,600 tons for disposal.

a. **Recycling System and Facilities** -- Recyclables collected by means of the County's single-family residential curbside collection program are processed at the County MRF, the Yard Trim Composting Facility. Private sector recyclables, for the most part, including those from the multi-family sector and non-residential sectors (including commercial, industrial and institutional generators), are processed at private facilities.

(1) Commingled Containers Facility -- The County MRF can process the materials at a rate of approximately 100 tons of incoming material per 7.5 working-hour shift (13.4 tons per operating hour). The MRF receives commingled materials primarily from the single-family sector, including municipal accounts, but is also available to, and receives a small amount of materials from, the multi-family and non-residential sectors. During FY 2007, total of 22, 570 tons of container materials were shipped to market from the County MRF, and for the FY 2016, a total of 23,529 tons officially projected to be shipped. This projection does not include another 3,000 tons of plastics hoped to be recycled as a result of the addition of more types of plastics, a program expansion initiated in July 2008. Allowing for this potential, and for slightly higher residue rates (incoming materials not marketable), a weekly second shift may needed. During the most recent twelve months, a second shift was found to be needed on occasion. The MRF could be operated on the basis of two full shifts per day on a routine basis if necessary. On this basis, the County MRF is believed to have sufficient capacity to process all anticipated incoming tonnage of commingled glass, plastic, aluminum and ferrous containers throughout the planning period.

(2) Residential Mixed Paper -- The County has a contractual agreement with OPS, Inc. to process residential mixed paper (RMP) received at the MRF. A portion of the County MRF serves an Acceptance Facility for this contract, and provides for receiving and transferring Residential Mixed Paper (RMP) to the OPS

facility. For this purpose, the County's MRF has the capacity to receive and transfer at least 346 tons of RMP per shift (90,300 tons/year on a five shift per week basis). The County's contract with OPS is designed to accommodate 90,000 tons of RMP but is virtually uncapped should added RMP be received. For FY 2016, the County projects recycling 83,800 tons of residential mixed paper through the MRF, or about 320 tons per day. Thus, the County's MRF and RMP contract provide adequate RMP recycling capacity for the planning period.

(3) Yard Trim -- Under the terms of agreements between the County and the Sugarloaf Citizens Association (see Section 5.2.1.4 (d) of this Chapter), the Yard Trim Composting Facility may process no more than 77,000 tons of yard trim per year. Also as discussed in Section 5.2.1.4, during the most recent fiscal year, demand on the Yard Trim Composting Facility was 74,040 tons. Projecting that figure to increase in proportion with single-family housing growth suggests that the 77,000 TPY limit in that Sugarloaf agreement will not be reached in FY 2015. However, yard waste deliveries are known to be influenced by weather. Therefore, in addition to promoting additional diversion to grasscycling and backyard composting, the County will maintain contingency backup composting contracts, and carryout the action plan described in Section 5.2.1.4(e).

(4) Private Sector Recycling Facilities -- Recyclables from the multi-family residential sector, as well as those from commercial, industrial and institutional generators, tend to be processed at private facilities. Paper generated in the multi-family sector is considered residential and is welcomed at the County MRF, as are commingled containers from any sector. The OPS facility, centrally located in the County, is more than adequate to handle paper generated by the non-residential sector. In addition, several large recycling facilities operated in the region counties which adequately serve in-county multi-family residential, commercial, industrial and institutional generators. These private facilities, in conjunction with the

County MRF, are expected to continue to meet the needs of the multi-family residential, commercial, industrial and institutional sectors for at least the next decade.

b. **Refuse Disposal System and Facilities** -- Non-recycled MSW that is generated in the County is processed for disposal either at County facilities or at private facilities. As indicated in Chapter 3, of the 694,288 tons of MSW disposed of during FY07, 150,600 tons were disposed of at non-county facilities, and in FY 2016, it is projected that 719,600 tons will require disposal. In the unlikely event that none of those 719,600 tons of MSW projected for disposal in the Year 2016 were processed at non-county facilities, then the County's RRF could process up to an average of 1,800 tons per day, taking in a permitted 657,000 tons. Recovering 17,628 of ferrous metals for recycling, this would result in a net of 639,372 tons of MSW being disposal via the RRF, leaving a total of about 80,288 tons of MSW (about 220 tons per day) needing to be landfilled without benefit of resource recovery. This capability is well within the capability of the Transfer Station physical and permitted capacity and the capacity of the County's contract with BWMF for transport and disposal at the out-of-County landfill. Thus, the County has provided adequate MSW disposal system capacity for the planning period.

However, in line with policies articulated in Sections 5.2.1.2(f)(2) and 5.4.1.2, designed to avoid the circumstance of bypass waste, the County prefers not to receive amounts of processible waste in excess of 92 percent of RRF permit capacity, designed to avoid the circumstance of bypass waste. As a practical matter, the actual amount of MSW needing to be bypassed would be influenced by the seasonal variations in the amount of waste received and the schedule of preventative maintenance required by County facilities. In order to avoid sending any processible waste out of County (from the County Transfer Station) in FY 2016 (i.e. to avoid any bypass waste at the County's hands), the County tip fee policy at

that time would need to result in private sector MSW exportation of about 131,400 tons. This is substantially less than the amount of export already demonstrated to be absorbed by regional disposal facility options inventoried in Chapter 4 (e.g. private sector MSW export is projected to be reduced from 23 percent of disposal to 18 percent of total disposal). Increased compliance in recycling regulations by the private sector could further reduce projected export.

In summary, the County, itself, has provided adequate MSW disposal system capacity for the planning period. As a practical matter, however, the County recognizes and participates in a regional competitive market for MSW disposal capacity, expects private sector MSW export to continue, and will moderate its tipping fee accordingly, consistent with the policy expressed in Section 5.4.2.1.

5.3.2 Land Clearing and Construction and Demolition Debris

Land clearing and construction and demolition debris, referred to collectively here as “C&D”, is solid waste from construction, demolition and renovation projects that produce debris including wood, wood products such as fiberboard and particleboard, cardboard, sheetrock and other drywall, plaster, fiberglass, plastic and other polymers, composite materials, glass, stone, steel and other metals, rubber, geotextile, asphalt, concrete, brick and mortar, rock, dirt, rubble, tree stumps, logs and large tree limbs. (See definition in Appendix A for a list of exclusions.)

Traditionally, the private sector provided almost all of its C&D disposal capacity needs, and the County provided for only its own government (e.g. road operations) generated disposal. During the period 2001 to 2004, several regional C&D disposal options closed. Although these were more supplanted, capacity-wise, by a large private-sector C&D recycling facility located in Clarksburg, Maryland, C&D deliveries to the County have increased to the point that the County Transfer Station is now the

preferred disposal site, accepting in FY07 58 percent of all C&D generated in the County.

As indicated in Table 3.1(e), land clearing and demolition debris (C&D) generated in the County was found to be 242,013 tons in Fiscal Year 2007. Of this amount, 102,766 were delivered to various private sector C&D acceptance facilities in the region, and 139,227 tons were delivered to the County's Transfer Station. Of the latter amount, 49,626 tons was generated by County government activities, including 1,965 tons that were sufficiently homogeneous that the County was able to recycle them. (As C&D is not MSW, recycled C&D is not counted in the County's MSW recycling rate.) The County owns no C&D processing equipment. Burnable components of C&D delivered to the County are processible (e.g. burned for renewable energy recovery) at the RRF, but only to the extent that RRF capacity is available. The County sets a separate tipping fee to accept C&D (see Section 5.4.2.1).

Changes in the annual generation of C&D land clearing and demolition debris are thought to be influenced by weather and economic cycles, but otherwise related in a proportional way to population growth and the resulting need for land clearing and new construction. This included about 50,000 tons generated by County government activities (e.g. road maintenance). A relative dearth of undeveloped land may result in a shift in the C&D composition of privately-generated C&D from land clearing type materials (e.g. stumps and dirt) to building demolition type materials. A total of 263,266 tons of land clearing and construction and demolition debris are projected to be generated in FY 2016.

The Clarksburg C&D recycling facility, alone, has sufficient permitted capacity to handle all non-governmentally generated C&D projected to be generated in the County in FY 2016. In addition several regional C&D processing and/or disposal

facilities are expected to remain available for the planning period. However, continued preference by the private sector to use of the County's Transfer Station for disposal of C&D will exacerbate the County's ability to deal with the scenario described in the previous section regarding any sudden reversal in MSW export.

5.3.3 Asbestos Containing Materials

The County no longer manages regulated asbestos-containing material (RACM) and does not use the landfill in Brunswick County, Virginia, for its disposal. Haulers must be licensed by the State to transport RACM and must use disposal facilities permitted by the State to accept RACM.

5.3.4 Controlled Hazardous Substances

The term, "controlled hazardous substances (CHS)," refers to hazardous waste and special medical waste that is generated in sufficient quantities (as established by the State of Maryland) to require special handling and disposal practices to protect public health and the environment.

5.3.4.1 Hazardous Waste

Hazardous wastes include specific wastes that are listed in Federal and State regulations, or which are characterized by at least one of the following properties: ignitability, corrosivity, reactivity or toxicity. As indicated in Table 3.4, hazardous waste generated in Montgomery County was 14,000 tons for Fiscal Year 2007.

MDE issues permits for hazardous TSD facilities. Permitted TSD facilities located in Montgomery County include the National Institutes of Health and the National Naval Medical Command in Bethesda. Hazardous waste is managed at the

National Institutes of Health by private contractors and at the National Naval Medical Command by the Defense Reutilization and Marketing Office System. Hazardous waste generated in the County is shipped to privately own and operated permitted TSD facilities located in nearby counties. In most cases, this hazardous waste is transported for ultimate disposition at out-of-state TSD facilities.

Hazardous waste generation is projected to increase consistent with employment trends resulting in a projected generation of 16,024 tons in 2016. Existing permitted private contractors serving the region are anticipated to adequately serve County needs.

5.3.4.2 Special Medical Waste

Special medical waste is generated by hospitals, doctors' offices and medical testing and research laboratories. Special medical waste includes utensils, bandages, containers or any other material issuing from all human patient care, diagnosis and surgical areas; animal bedding and feces; disposable laboratory equipment, and their contents; materials resulting from and/or exposed to infectious animal care and laboratory procedures; all disposable needles and syringes; all other disposable materials from out-patient care for human and animal patients, where presence of pathogenic organisms are diagnosed or suspected.

MDE regulates special medical waste incinerators. At present, no permitted special medical waste incinerator operates in Montgomery County. All special medical waste generated within the County is transported for disposal at private facilities outside of Montgomery County. MDE licenses special medical waste haulers. Special medical waste reported by licensed haulers was 1,435 tons for Fiscal Year 2007. Since controlled medical waste is projected to increase at the same rate as County employment growth, the projected County generation for the Year 2016 is

1,624 tons. The County has not received reports of insufficient special medical waste disposal capacity at private facilities serving County generators.

5.3.5 Animal Carcass Waste

As indicated in Table 3.5, animal carcass waste generation was 200 tons for Fiscal Year 2007.

The Montgomery County Police Department, Division of Animal Services, contracts with a private renderer to dispose of the dead animals found on County grounds or highways. The County collects approximately 15 tons of animal carcasses, primarily domestic pets and deer, per year. In addition, the Montgomery County Animal Shelter estimates that it generates 10 to 12 tons of animal carcasses per year.

No animal waste rendering facilities operate in Montgomery County. Private renderers in Virginia and Pennsylvania serve the County's needs.

One permitted pet crematoria (with a capacity of 36 tons per year) operates in Montgomery County.

Animal waste is projected to increase at the same rate as population growth. Over the next ten years, existing pet crematoria and cemeteries and out-of-County rendering facilities are anticipated to continue to serve County animal carcass waste generators.

5.3.6 Bulky and Special Wastes

5.3.6.1 Bulky Waste

Bulky wastes include large household appliances (white goods), other scrap metals and building materials. According to Table 3.6, 58,218 tons of bulky wastes were generated in Montgomery County during Fiscal Year 2007.

Once received at the County Transfer Station, bulky items typically are diverted away from the RRF. White goods and other scrap metals are sent for recycling. Reusable building materials are sent to a non-profit organization in Baltimore for use in housing projects throughout Maryland. Other bulky items that are not suitable for disposal at the RRF are included with other nonprocessible waste sent for disposal at a private landfill in Brunswick County, Virginia.

Bulky waste generation of scrap metal and white goods is projected to be 63,330 tons in Fiscal Year 2016. Existing facilities and programs are sufficient to process these materials for the next decade.

5.3.6.2 Automobiles

Table 3.6 indicates that an estimated 58,900 tons of automobile waste was generated in the County in Fiscal Year 2007. As explained in Chapter 3, annual generation is expected to grow in proportion to population increase over the next decade.

Two automobile parts salvage companies operate in Montgomery County. However, no full scale automobile recycling facilities exist within the County. Retired

automobiles are hauled to auto recyclers located outside of the County. No further County involvement in automobile waste management is anticipated in the next decade.

5.3.6.3 Scrap Tires

According to Table 3.6, approximately 9,493 tons of scrap tires were generated in Fiscal Year 2007 Federal guidelines suggest that future scrap tire generation will be directly proportional to population growth. Accordingly, 10,326 tons of tires are projected to be scrapped in the County in Fiscal Year 2016.

The State of Maryland has developed a scrap tire program for the management of scrap tires in Maryland. Many auto service centers in the County arrange for private recycling of their customers' tires at facilities outside of the County. County residents may drop off five or fewer scrap tires per year at the County's Transfer Station for recycling. In Fiscal Year 2007, the County received and recycled approximately 2013 tons of scrap tires.

Illegal dumping of tires in the County usually occurs in relatively small quantities (usually less than 50-100 tires) at roadsides and in wooded areas. No large illegal tire dumps are known to exist in the County, according to a 1993 inventory of tire dumps conducted by the State. The number of scrap tires dumped illegally in the County is not known.

The existing scrap tire system in Maryland should be sufficient to handle County scrap tire generation through the life of this plan.

5.3.7 Wastewater Treatment Biosolids

As stated in Section 5.2.2.1.b. above, the Seneca Wastewater Treatment Plant has been expanded to accommodate future demand.

The WSSC share of biosolids (80 dry tons per day) from the Blue Plains[3] WWTP is presently being land applied to agricultural land under contracts managed by the WSSC. Improvements to the Blue Plains solids handling and processing systems are being made in an effort to improve the long-term viability of this beneficial recycling process for biosolids. In 1996, the Blue Plains Regional Committee (BPRC) completed a study called *The Blue Plains Regional Biosolids Management Plan.* The BPRC subsequently recommended a significant capital improvement program at Blue Plains to implement the improvements recommended in this study. This plan was the basis for an expanded biosolids management plan developed by the DC Water and Sewer Authority (WASA). In 2008, WASA updated the Blue Plains Biosolids Management Plan to include thermal hydrolysis, a process that reduces the number of digesters needed to process the biosolids from Blue Plains. WASA is evaluating a comprehensive biosolids processing program that is expected to be proposed in the FY 2010 WASA Capital Improvements Plan. WSSC will be responsible for approximately 45 percent of the capital program costs based on their allocation of capacity at the Blue Plains facility.

The County's biosolids management plan is detailed in the *Comprehensive Water and Sewer Plan for Montgomery County*.

[3] 1985 Inter-Municipal Agreement (IMA).

5.3.8 Septage

Current facilities and services are adequate to manage County septic and holding tank biosolids generation through the life of the plan. The County's plan for septage management is detailed in the *Comprehensive Water and Sewer Plan for Montgomery County.*

5.3.9 Other Wastes

As stated in Chapter 3, Montgomery County generates insignificant quantities of agricultural wastes and mining wastes.

Litter and recreational wastes are considered MSWs and are included in the tonnage estimates in Section 5.3.1 of this Chapter.

Street sweepings are included with the nonprocessible waste transported to a privately operated landfill in Brunswick County, Virginia.

5.4 SYSTEM FINANCING

Basic cost information and fiscal data relating to the implementation of this Plan may be found in the approved Annual Operating Budget and the Approved Capital Improvements Program for DEP. In addition, in conjunction with the annual preparation of the County Executive’s Recommended Operating Budget, DEP will prepare a document detailing the current costs and the projected six-year costs of each solid waste management program. Assumptions regarding the costs and workload of the various programs also will be detailed. DEP also will provide long term projections regarding the revenues collected for solid waste programs and the fees that will be necessary to support the program. Either in budget documents or in

supplemental documents, DEP also will calculate the marginal cost of any new recycling or other solid waste programs proposed by the County Executive. These documents will be available at County public libraries and at the offices of DEP.

5.4.1 Budgeting

5.4.1.1 General Budgeting

The County Executive is responsible for the preparation of the annual budget and its amendments for submission to the County Council for appropriate action. OMB assists the County Executive and the Chief Administrative Officer with all budget matters, research, program evaluation and such other related matters as may be assigned.

5.4.1.2 Solid Waste Management Budget Preparation

The Director of DEP prepares and submits to the County Executive a recommended budget for operations and capital improvements and requests for supplemental appropriations, as needed, related to solid waste management.

5.4.1.3 Biosolids Management Budget Preparation

DEP reviews the budget requests of WSSC which are related to the County's activities in solid waste management and makes appropriate recommendations to the County Executive.

5.4.2 Solid Waste Revenue Sources

County law requires that the County at least annually set charges for solid waste services to equal expenses. The County funds its solid waste system primarily by means of four revenue streams: (1) tipping fees, (2) systems benefit charges, (3) refuse collection and leaf vacuuming charges, (4) revenues and credits from the sale of methane, recyclables and compost.

Revenues from these sources provide an adequate and reliable source of funding to finance County solid waste programs, including all recycling services. Revenues raised from the four sources listed above go directly into an independent, legislatively established Solid Waste Enterprise Fund which finances County solid waste programs exclusively.

5.4.2.1 Tip Fees

The County charges separate per-ton fees ($/ton “tipping fees”) for accepting MSW (known as the “refuse tipping fee”), and for accepting C&D (charged for waste delivered in open top roll-off boxes). A distinct tipping fee is also set for accepting yard waste. All tipping fees are set by the County Council and are calculated so as to assure full recovery of County solid waste system costs, together with all other creditable revenue sources. Within these constraints, the tipping fees can also be set so as to influence behavior by incentive.

The refuse tipping fee is set, and periodically adjusted, relative to the regional market, such that MSW delivered by private haulers to the Transfer Station during the forthcoming fiscal year will match, as nearly possible, a target of 85 percent to 92 percent of the RRF permit capacity (e.g., 558,450 to 604,440 tons per year based on waste with the design point heating value of 5,500 BTU/pound).

The C&D tipping fee shall be set, at a minimum, to fully cover the County's cost of handling this special type of waste but shall be set at a higher rate than the refuse tipping fee so as to reflect the County's preference to use the RRF for processing MSW. C&D is identified, for the purpose of applying this fee, by virtue of its generally being delivered for disposal in open top roll-off boxes. Finally, the refuse and C&D tipping fees shall be no lower than so as to reasonably assure that combined deliveries to the County do not exceed the 821,500 TPY annual limitation of the Transfer Station's refuse disposal permit.

Fluctuations in economic activity affecting overall waste generation, relative changes in the use of regional disposal options by private collectors and changes in recycling performance by all sectors will continue to affect the amount of MSW delivered to the County for disposal in any year. Influences beyond the County's direct control include pre-existing private sector disposal contracts at regional facilities and regional pricing pressures. These, in particular can affect response time (i.e. the time it takes for the market to respond to a revised County tip fee). Accordingly, DEP will deploy, develop and maintain contingency plans and operational capacity that can be used in conjunction with refuse and C&D tipping fee adjustment to manage the amounts of incoming MSW and C&D. The contingency plans may include controlled bypass of processible waste while tipping fee adjustments take effect.

Tip fees for refuse from non-municipal, single-family residences and multi-family dwellings in buildings comprised of six or fewer dwelling units are collected on the tax bill as Disposal Fees. All other tip fees are charged as waste is delivered at the Transfer Station.

5.4.2.2 Systems Benefit Charges

Systems benefit charges are imposed on residential and non-residential generators of solid waste and can include both a base charge and an incremental charge. Base systems benefit charges, after offsets from tip and disposal fees, cover all or a portion of the cost of developing and maintaining the basic programs and facilities necessary to fulfill the County's obligation to provide for the management of solid waste generated within the County. Revenues from base systems benefit charges, together with refuse tip fees and disposal fees, provide for all system costs not covered by another fee. These costs include system administration, waste reduction programs, debt service on existing facilities and the fixed cost of disposal programs and facilities.

The County Council annually establishes system benefit charge rates and tip fees at a level necessary to raise sufficient revenues to fund County Council approved solid waste activities and system expenses. Base system benefits charges are derived by allocating revenue generation requirements among the single-family residential, multi-family residential and non-residential sectors in proportion to each sector’s contribution to overall County waste generation. Base system benefit charges are calculated by dividing the total base system benefit charge revenue generation required from each sector, less tip fee offsets from that sector, by the total number of billable units in that sector.

From the non-residential sector, the County may charge and collect the required base and incremental systems benefit charges by a variety of means. Currently, the County establishes, under Executive Regulation 9-99 (which can be amended without amending this Plan), non-residential system benefit charges which vary from property to property according to (1) the average waste generation rate for different non-residential land use categories; and (2) the property’s improved gross

floor area (measured by 2,000 square foot units). There are five categories of non-residential generators ranging from low generators to high generators. Non-residential solid waste generators in specific land uses are categorized into a generator category based on waste generation studies. The charge for a generator is then multiplied by the number of 2,000 square foot units attributable to that generator.

Incremental system benefit charges cover all or a portion of incremental services received by some, but not all, generators of solid waste. Incremental system benefit charges are assessed to each generating sector (single-family residential, multi-family residential, and non-residential) for services provided specifically to that sector. For example, each single-family household (in unincorporated areas of the County) that receives curbside recycling services is charged for its share of curbside recycling program costs. Incremental system benefit charges for the multi-family residential and non-residential sectors cover educational, enforcement and outreach services provided directly for the benefit of each of those two sectors.

5.4.2.3 Refuse Collection and Leaf Vacuuming Charges

The County has separate revenue streams to fund refuse collection and leaf vacuuming services. Single-family residences within the Solid Waste Collection District of the County are assessed charges to cover the costs of refuse collection services. Single-family and multi-family residences within the Leaf Recycling Service Area of the County are assessed charges to cover the costs of leaf vacuuming services.

5.4.2.4 Revenues and Credits

The County Solid Waste Enterprise Funds receive revenue from the sale of recyclable materials recovered at its Materials Recovery Facility in Derwood, Maryland. In addition, the County expects to begin receiving revenue from the sale of electricity generated by methane extracted from closed landfills beginning in mid-2009.. In addition, the County receives economic credit, in the form of reduced operating costs paid to contractors, as a result of the revenue from the sale of electricity and ferrous metals from the RRF, and the sales of compost products produced at the Yard Waste Composting Facility and also from mulch produced from grinding brush and natural wood waste at the Shady Grove Processing Facility and Transfer Station. Revenues are also derived from interest earned on any reserves held by on behalf of the Solid Waste Funds. Finally, minor amounts of revenues are derived from miscellaneous sources such as license fees and rent. Annually recommended System Benefit Charges, Refuse Collection and Leaf Vacuuming Fees discussed above are calculated net of all projected revenues and yet fully fund operating budgets in accordance with the Rate Covenants of the Master Authorization and Chapter 48 of the County Code.

5.4.3 Biosolids Management Revenue Sources

WSSC funds the management of biosolids through waste water treatment and water supply user fees.

5.4.4 Plan of Action: System Financing

The County will continually monitor revenue generation methods to assure that each ratepayer contributes a fair and equitable share while generating sufficient resources to fund all necessary solid waste programs and services. The County will

keep abreast of current market conditions to maintain tipping fees that remain competitive. Tip fees affect the amount of waste received in County facilities and these fees will be used as appropriate to manage the demand on County facilities. Annually, system benefit charge rates will be reviewed and calculated in a manner that fairly allocates costs among different categories of ratepayers. Refuse collection and leaf vacuuming charges will be adjusted, as necessary, to reflect actual program costs. Finally, the County will monitor commodity markets to assure the Solid Waste Fund receives the most favorable revenues and credits possible from the sale of recovered energy from closed landfills and recyclables.